

TS 307

.H5











C351  
17

# *How to Buy* **IRON and STEEL** **MATERIALS**

---

---

A FEW SUGGESTIONS TO THOSE  
INTERESTED IN THE PURCHAS-  
ING OF IRON AND STEEL

---

---

Price \$1.00

Export Department

**HIDALGO STEEL COMPANY**

Incorporated

General Offices: New York, N. Y.

Branch: Pittsburgh, Pa.

T 5307  
H 5



19-193

AUG 23 1918

©CLA501544

20.11



## INTRODUCTION

### STEEL AND IRON PRODUCTS

**B**EFORE entering into the description and definition of the many materials made of various grades of iron and steel, it is essential to make a brief mention of a few things of paramount importance to those not fully conversant with the physical and chemical properties of steel as applied to articles manufactured for structural, engineering and machinery purposes.

Generally speaking, steel is divided into two classes, that is: Carbon Steel and Alloy Steel.

Carbon Steel is the common commercial grade, the properties of which depend mainly on the percentage of carbon it contains, together with the percentage of such other metals and metaloids as: Manganese, Phosphorus, Silicon and Sulphur.

Alloy Steel shows, besides carbon, a certain proportion of such alloys as: Nickel, Chromium, Tungsten, Manganese, Vanadium, etc., all of which have their effect upon the hardness, strength and toughness of the steel.

Ordinary Commercial or Carbon Steel is designated in the market under various names, such as, "Mild or Soft," "Medium," "Hard" Steel, etc., but the following are recognized official trade names for Steel:

- (A) "Mild or Soft Bessemer Steel" showing carbon not over 15%.  
"Mild or Soft Open Hearth Steel" with carbon not over 25%.  
"Dead Soft Open Hearth Steel" with not over 15% carbon.
- (B) "Medium Grade Steel" used for structural purposes showing Carbon from 0.30 to 0.40, with tensile strength from 60,000 to 70,000 lbs.
- (C) "Hard Steel" shows carbon from .40 to .60 with tensile strength from 70,000 to 90,000 lbs., per square inch.

In Steel specifications and quotations one will very frequently find such terms as: "tensile strength" or "ultimate strength," "Elastic limit or yield point," and "Elongation," all of which are

intended to designate certain properties required in steel for one purpose or another. These are known and designated as the physical properties of steel, all of which stand in direct proportion to the chemical analysis of the steel, so much so, that even a layman can determine one by the other, that is: tell the physical properties by the chemical analysis in the absence of the former, and vice versa.

Much unnecessary cabling and the resulting annoyance and loss of time and money could be saved by our friends abroad by the careful study of the chemical analysis and physical properties of steel and their application.

*Tensile Strength* means the maximum number of pounds per square inch required to pull apart a specimen.

*Elastic Limit* or *Yield Point* means the point where the applied stress begins to produce a permanent elongation; up to that point the metal will yield slightly, but when the load is removed will return to its original length.

*Elongation* means the percentage of stretch or elongation in a given test piece, which is almost universally taken to be eight inches, except for special tests.

*Reduction of area* means the percentage of reduction from the original section area of sample where it is drawn down in the action of pulling apart. The greater the percentage of reduction of area and of elongation, the better the steel.

As the carbon in steel increases the Elongation *decreases*, and the Tensile Strength *increases*. Each point or each one-hundredth of one percent of carbon increases the Tensile Strength nearly one thousand pounds. Therefore, taking 35,000 pounds of Tensile Strength for the lowest percentage of carbon steel made, say 0.05 to 0.08, you can easily determine or estimate the carbon the steel must contain in order to have any specified tensile strength, or, on the other hand, you can figure out the tensile strength of the steel if you are given only the chemical analysis showing the percentage of carbon.

*Structural Steel*, whether Bessemer or Open Hearth, shows an average tensile strength of 55,000 to 65,000 lbs.

## SEMI-FINISHED PRODUCTS

Ingots, Billets, Slabs, Blooms and the like, are called semi-finished products, and are used for rolling or forging into any other kind of shapes.

### INGOTS

An Ingot is the solid block of steel as it comes out of the mould after cooling.

A Cropped Ingot is one that has had the top and bottom cut off. This is done to remove imperfect material.

### BLOOMS AND BILLETS

After the Ingot is cropped it is either cogged (rolled) or forged into smaller and more convenient sizes for the manufacture of bars and shapes. These are called Blooms or Billets.

The common sizes in which *billets* are furnished are the following:  $1\frac{3}{8}$ ,  $1\frac{1}{2}$ ,  $1\frac{5}{8}$ ,  $1\frac{3}{4}$ , 2" and  $2\frac{1}{2}$ " square in lengths of 15, 20, 25 and 30 feet. Also 4 x 4, 5 x 4, 4 x 6, 5 x 6, 5 x 5, 6 x 6 inches thick in any lengths of from 2' to 9', inclusive.

*Rolling Mill Blooms* are furnished in sizes of 5 x 6",  $6\frac{1}{2}$ ", 7",  $7\frac{1}{2}$ ", 8",  $8\frac{1}{2}$ ", 9", and 10" square, in lengths of not less than 4' nor more than 9'.

*Slabs* are used for rolling down into plates, and are considered as very heavy plates, where the width is equal to at least twice the thickness.

Slabs can be furnished in widths of from 8" to 16", inclusive, not thinner than 4" or thicker than 8".

*Sheet Bars or Tin Bars* are small slabs used for making sheets and tin plate; if made of charcoal wrought iron, they are termed charcoal bars; ordinary sheet bars are called coke bars.

The principal thing to mention in semi-finished products is the chemical analysis, stating the exact percentage of the following: Carbon, Manganese, Phosphorus, Sulphur, and Silicon, especially so in billets and ingots. Besides that the exact dimensions, such as: thickness, width and length are also required.

## BARS ROUND AND SQUARE

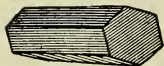


Specifications for round and square bars require:

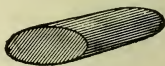
- (A) the sizes: diameter for rounds, thickness for squares, and length.
- (B) whether Iron or Steel Bars are wanted. If the latter, whether they are to be "mild," "medium" or "hard."
- (C) The purpose for which they are to be used.

Round and square bars from  $\frac{5}{8}$ " to  $1\frac{1}{2}$ " thick are base. For extras on other sizes consult list of extras.

Round and square structural bars will require the same information as the above bars in specifications. The latter, however, are somewhat different as regards the extras. The rounds and the squares from  $\frac{3}{4}$ " to  $3\frac{1}{16}$ " are base; smaller bars than  $\frac{3}{4}$ " will carry an extra as per list of extras, and will also be subject to the regular extra for cutting to exact length.



**Hexagon Bars**



**Oval Bars**



**Half Ovals**



**Half Rounds**



**Flat Bars and Bands**

The same information (referring to these bars) will be required as on Rounds and Squares.

$\frac{3}{4}$ " to 3" thick will take a 15¢ per 100 lbs. extra and other sizes will take larger extras as per list of extras.

Lengths and sizes (thickness and width) are required in specifications besides the quantity;  $\frac{3}{4}$ " to  $1\frac{3}{4}$ " will take a 15¢ per 100 lbs. extra, and sizes smaller than  $\frac{3}{4}$ " will take a greater extra as per regular list of extras.

While mentioning in previous paragraphs an extra applying over and above the base price per 100 lbs., charged for cutting to exact length (approximately 15¢ per 100 lbs.), this extra is charged only when the buyer does not agree to allow the mill to ship the material with the customary commercial variations in length, which are generally from  $\frac{1}{8}$  of a foot to  $\frac{1}{2}$  of a foot longer or shorter than specified.

In explanation of this, if one orders bars 12' long and wants them cut to exactly 12', and not a fraction of an inch longer or shorter, there is an extra of 10¢ per 100 lbs.

On special short lengths, different extras will apply, and will be approximately as follows:

Cutting to lengths under 3' down to 2' inclusive, 25¢ per 100 lbs.

Cutting to lengths under 2' down to 1' inclusive, 50¢ per 100 lbs.

Cutting to lengths under 1 foot, \$1.25 per 100 lbs.

Finally, cutting to exact lengths or within  $\frac{1}{8}$ ", subject to special arrangements with the mill.

Whenever material is wanted for Muleback or other difficult transportation, state the weight of bundles desired and also the approximate length of bars.

Whenever the bars are required to be bent for greater facility of transportation, it is necessary to state this in the order.

When special packing such as wrapping bundles in burlap, crating or boxing is required, this should be stated, and same will be charged at cost.

## EXTRAS

### MILD STEEL BARS

### ROUNDS AND SQUARES

Given in cents per lb.

$\frac{3}{4}$ to $3\frac{1}{16}$ in.....	Base
$\frac{5}{8}$ to $1\frac{1}{16}$ in.....	.05c. extra
$\frac{1}{2}$ to $\frac{9}{16}$ in.....	.10c. extra
$\frac{7}{16}$ in.....	.20c. extra
$\frac{3}{8}$ in.....	.25c. extra
$1\frac{1}{32}$ in.....	.30c. extra
$\frac{5}{16}$ in.....	.35c. extra
$\frac{9}{32}$ in.....	.40c. extra
$\frac{1}{4}$ in.....	.50c. extra
$1\frac{5}{64}$ in.....	.75c. extra
$\frac{7}{32}$ in.....	1.00c. extra
$\frac{3}{16}$ in.....	1.25c. extra
$3\frac{1}{8}$ to $3\frac{9}{16}$ in.....	.075c. extra
$3\frac{5}{8}$ to $4\frac{1}{16}$ in.....	.125c. extra
$4\frac{1}{8}$ to $4\frac{9}{16}$ in.....	.15c. extra
$4\frac{5}{8}$ to $5\frac{1}{16}$ in.....	.20c. extra
$5\frac{1}{8}$ to $5\frac{9}{16}$ in.....	.25c. extra
$5\frac{5}{8}$ to $6\frac{1}{16}$ in.....	.375c. extra
$6\frac{1}{8}$ to $6\frac{9}{16}$ in.....	.50c. extra
$6\frac{5}{8}$ to $7\frac{1}{4}$ in.....	.625c. extra

For intermediate sizes, the next higher extra to be charged in all cases.

### HALF ROUNDS

1 to 3 in.....	.20c. extra
$\frac{3}{4}$ to $1\frac{5}{16}$ in.....	.35c. extra
$\frac{5}{8}$ to $1\frac{1}{16}$ in.....	.50c. extra
$\frac{1}{2}$ to $\frac{9}{16}$ in.....	.70c. extra
$\frac{3}{8}$ to $\frac{7}{16}$ in.....	1.10c. extra

For intermediate sizes, the next higher extra to be charged in all cases.

# BAR EXTRAS (Continued)

## FLATS

1 to 6 in. x $\frac{3}{8}$ to 1 in.	Base
1 to 6 in. $\frac{1}{4}$ to $\frac{5}{16}$ in.	.10c. extra
$\frac{11}{16}$ to $\frac{15}{16}$ in. x $\frac{3}{8}$ to $\frac{3}{4}$ in.	.20c. extra
$\frac{11}{16}$ to $\frac{15}{16}$ in. x $\frac{1}{4}$ to $\frac{5}{16}$ in.	.25c. extra
$\frac{9}{16}$ to $\frac{5}{8}$ in. x $\frac{3}{8}$ to $\frac{1}{2}$ in.	.25c. extra
$\frac{9}{16}$ to $\frac{5}{8}$ in. x $\frac{1}{4}$ to $\frac{5}{16}$ in.	.35c. extra
$\frac{1}{2}$ in. x $\frac{3}{8}$ to $\frac{7}{16}$ in.	.50c. extra
$\frac{1}{2}$ in. x $\frac{1}{4}$ to $\frac{5}{16}$ in.	.60c. extra
$\frac{7}{16}$ in. x $\frac{3}{8}$ in.	.70c. extra
$\frac{7}{16}$ in. x $\frac{1}{4}$ to $\frac{5}{16}$ in.	.80c. extra
$\frac{3}{8}$ in. x $\frac{1}{4}$ to $\frac{5}{16}$ in.	1.00c. extra
$1\frac{1}{8}$ to 6 in. x $1\frac{1}{16}$ to $1\frac{3}{16}$ in.	.05c. extra
$1\frac{1}{8}$ to 6 in. x $1\frac{1}{4}$ to $1\frac{1}{2}$ in.	.10c. extra
$1\frac{3}{4}$ to 6 in. x $1\frac{5}{8}$ to $2\frac{3}{4}$ in.	.15c. extra
$3\frac{1}{8}$ to 6 in. x 3 to 4 in.	.20c. extra

For intermediate sizes, the next higher extra to be charged in all cases.

## HEXAGONS

$\frac{3}{4}$ to 3 in.	.15c. extra
$\frac{5}{8}$ to $1\frac{1}{16}$ in.	.25c. extra
$\frac{1}{2}$ to $\frac{9}{16}$ in.	.35c. extra
$\frac{7}{16}$ in.	.55c. extra
$\frac{3}{8}$ in.	.65c. extra
$\frac{5}{16}$ in.	.75c. extra
$\frac{1}{4}$ in.	1.00c. extra

For intermediate sizes, the next higher extra to be charged in all cases.

## OVALS

$\frac{3}{4}$ to $2\frac{1}{2}$ in. x $\frac{3}{8}$ in. and thicker.	.20c. extra
$\frac{3}{4}$ to $2\frac{1}{2}$ in. x $\frac{1}{4}$ in. to $\frac{5}{16}$ in.	.30c. extra
$\frac{3}{4}$ to $2\frac{1}{2}$ in. x $\frac{5}{32}$ in. to $\frac{3}{16}$ in.	.45c. extra
$\frac{5}{8}$ to $1\frac{1}{16}$ in. x $\frac{5}{16}$ in. and thicker.	.35c. extra
$\frac{5}{8}$ to $1\frac{1}{16}$ in. x $\frac{3}{16}$ in. to $\frac{1}{4}$ in.	.50c. extra
$\frac{5}{8}$ to $1\frac{1}{16}$ in. x $\frac{1}{8}$ in. to $\frac{5}{32}$ in.	.65c. extra
$\frac{1}{2}$ to $\frac{9}{16}$ in. x $\frac{1}{4}$ in. and thicker.	.55c. extra
$\frac{1}{2}$ to $\frac{9}{16}$ in. x $\frac{1}{8}$ in. to $\frac{3}{16}$ in.	.70c. extra
$\frac{1}{2}$ to $\frac{9}{16}$ in. x $\frac{3}{32}$ in.	.95c. extra
$\frac{3}{8}$ to $\frac{7}{16}$ in. x $\frac{3}{16}$ in. and thicker.	.95c. extra
$\frac{3}{8}$ to $\frac{7}{16}$ in. x $\frac{1}{8}$ in. to $\frac{5}{32}$ in.	1.20c. extra
$\frac{3}{8}$ to $\frac{7}{16}$ in. x $\frac{3}{32}$ in.	1.45c. extra

For intermediate sizes, the next higher extra to be charged in all cases.

## HALF OVALS

Gauges shown are Birmingham Wire Gauge

1 to 4 in. x $\frac{1}{4}$ in. and thicker.	.25c. extra
1 to 4 in. x Nos. 7, 8, 9 and $\frac{3}{16}$ in.	.35c. extra
1 to 4 in. x Nos. 10, 11, 12 and $\frac{1}{8}$ in.	.50c. extra
$\frac{3}{4}$ to $\frac{5}{16}$ in. x $\frac{3}{16}$ in. and thicker.	.50c. extra
$\frac{3}{4}$ to $\frac{5}{16}$ in. x Nos. 10, 11, 12 and $\frac{1}{8}$ in.	.65c. extra
$\frac{3}{4}$ to $\frac{5}{16}$ in. x Nos. 13, 14 and 15.	.80c. extra
$\frac{5}{8}$ to $1\frac{1}{16}$ in. x $\frac{5}{32}$ in. and thicker.	.60c. extra
$\frac{5}{8}$ to $1\frac{1}{16}$ in. x Nos. 10, 11, 12 and $\frac{1}{8}$ in.	.75c. extra
$\frac{5}{8}$ to $1\frac{1}{16}$ in. x Nos. 13, 14 and 15.	.90c. extra
$\frac{1}{2}$ to $\frac{9}{16}$ in. x $\frac{1}{8}$ in. and thicker.	.80c. extra
$\frac{1}{2}$ to $\frac{9}{16}$ in. x Nos. 13, 14 and 15.	1.05c. extra
$\frac{3}{8}$ to $\frac{7}{16}$ in. x $\frac{3}{32}$ in. and thicker.	1.35c. extra
$\frac{3}{8}$ to $\frac{7}{16}$ in. x Nos. 14 and 15.	1.60c. extra

For intermediate sizes, the next higher extra to be charged in all cases.

# BANDS

Gauges shown are Birmingham Wire Gauge

1½ to 6 in. x Nos. 7, 8, 9 and ⅜ in.	.20c. extra
1½ to 6 in. x Nos. 10, 11, 12 and ⅝ in.	.30c. extra
1 to 1⅞ in. x Nos. 7, 8, 9 and ⅜ in.	.25c. extra
1 to 1⅞ in. x Nos. 10, 11, 12 and ⅝ in.	.35c. extra
1⅜ to 1⅝ in. x Nos. 7, 8, 9 and ⅜ in.	.35c. extra
1⅜ to 1⅝ in. x Nos. 10, 11, 12 and ⅝ in.	.40c. extra
1⅜ to ⅜ in. x Nos. 7, 8, 9 and ⅜ in.	.50c. extra
1⅜ to ⅜ in. x Nos. 10, 11, 12 and ⅝ in.	.60c. extra
⅞ to ⅝ in. x Nos. 7, 8, 9 and ⅜ in.	.60c. extra
⅞ to ⅝ in. x Nos. 10, 11, 12 and ⅝ in.	.65c. extra
½ in. x Nos. 7, 8, 9 and ⅜ in.	.65c. extra
½ in. x Nos. 10, 11, 12 and ⅝ in.	.75c. extra
⅞ in. x Nos. 7, 8, 9 and ⅜ in.	.90c. extra
⅞ in. x Nos. 10, 11, 12 and ⅝ in.	1.05c. extra
⅝ in. x Nos. 7, 8, 9 and ⅜ in.	.95c. extra
⅝ in. x Nos. 10, 11, 12 and ⅝ in.	1.20c. extra

For intermediate sizes, the next higher extra to be charged in all cases.

# QUANTITY DIFFERENTIALS

All specifications for less than 2000 lb. of a size will be subject to the following extras, the total weight of a size ordered to determine the extra, regardless of length and regardless of exact quantity actually shipped.

Quantities less than 2000 lb. but not less than 1000 lb.	.15c. extra
Quantities less than 1000 lb.	.35c. extra

# NATIONAL IRON CLASSIFICATION

## IRON BARS

Subject to usual and customary extras for size, quantity, etc. (see classification below), and established custom as regards delivery point to govern.

(Adopted Dec. 3, 1895.)

## ROUNDS AND SQUARES

	Per 100 Lb
1 to 1⅞	Base
2 to 2⅞	0.20c. extra
3 to 3½	.50c. extra
3⅝ to 4	.80c. extra
4⅞ to 4½	1.00c. extra
4⅝ to 5	1.30c. extra
5⅞ to 6	1.80c. extra
6⅞ to 6½	2.20c. extra
6⅝ to 7¼	2.50c. extra
¾ to ⅞	.10c. extra
⅝ to 1⅞	.20c. extra
½ to ⅞	.30c. extra
⅞ to 1⅞	.40c. extra
⅝ to 1⅞	.50c. extra
⅞ to 1⅞	.70c. extra
¼ to ⅞	.90c. extra
⅞ to 1⅞	1.40c. extra
⅞ to 1⅞	2.50c. extra

# IRON EXTRAS (Continued)

## FLATS

1½ to 4 x 3⁄8 to 1.....	Base
4¼ to 6 x 3⁄8 to 1.....	.10c. extra
4¼ to 6 x 1½ to 1.....	.40c. extra
6¼ to 8 x 3⁄8 to 1.....	.60c. extra
6¼ to 8 x 1½ to 1.....	.60c. extra
8¼ to 10 x 3⁄8 to 1.....	.80c. extra
1¾ to 4 x 1½ to 1.....	.30c. extra
2 to 4 x 1½ to 2.....	.50c. extra
4¼ to 6 x 1½ to 2.....	.60c. extra
6¼ to 8 x 1½ to 2.....	.80c. extra
8¼ to 10 x 1½ to 2.....	.90c. extra
8¼ to 10 x 1½ to 2.....	1.00c. extra
2 to 4 x 2½ to 3.....	.60c. extra
4¼ to 6 x 2½ to 3.....	.80c. extra
6¼ to 8 x 2½ to 3.....	1.00c. extra
1½ to 1¾ x 3⁄8 to 1.....	.10c. extra
1 to 1½ x 3⁄8 to 1.....	.20c. extra
¾ to 1½ x 3⁄8 to ¾.....	.40c. extra
5⁄8 to 1½ x 3⁄8 to 5⁄8.....	.50c. extra
½ to 9⁄15 x 3⁄8 to ½.....	.90c. extra

## HEAVY BAND IRON

Per 100 Lb.

8¼ to 10 x ¼ to 5⁄16.....	.70c. extra
7 to 8 x ¼ to 5⁄16.....	.70c. extra
6¼ to 6¾ x ¼ to 5⁄16.....	.50c. extra
4¼ to 6 x ¼ to 5⁄16.....	.30c. extra
1½ to 4 x ¼ to 5⁄16.....	.20c. extra
1 to 1¾ x ¼ to 5⁄16.....	.30c. extra
¾ to 1½ x ¼ to 5⁄16.....	.50c. extra
5⁄8 to 1½ x ¼ to 5⁄16.....	.80c. extra
½ to 9⁄16 x ¼ to 5⁄16.....	1.00c. extra
3⁄8 to 7⁄16 x ¼ to 5⁄16.....	1.50c. extra

Heavy bands, 7⁄32 in. thick, 10c. per 100 lb. higher than ¼ to 5⁄16 thick  
Bevel edge shaft iron 10c. higher than same size of heavy bands.

## LIGHT BANDS

Per 100 Lb.

7 to 8 x No. 9 to 3⁄16.....	.90c. extra
7 to 8 x Nos. 10, 11, 12.....	1.00c. extra
6¼ to 6¾ x No. 9 to 3⁄16.....	.70c. extra
6¼ to 6¾ x Nos. 10, 11, 12.....	.80c. extra
4¼ to 6 x No. 9 to 3⁄16.....	.50c. extra
4¼ to 6 x Nos. 10, 11, 12.....	.60c. extra
1¼ to 4 x No. 9 to 3⁄16.....	.40c. extra
1¼ to 4 x Nos. 10, 11, 12.....	.50c. extra
1 to 1¾ x No. 9 to 3⁄16.....	.50c. extra
1 to 1¾ x Nos. 10, 11, 12.....	.60c. extra
13⁄16 to 7⁄8 x No. 9 to 3⁄16.....	.60c. extra
13⁄16 to 7⁄8 x Nos. 10, 11, 12.....	.70c. extra
11⁄16 to ¾ x No. 9 to 3⁄16.....	.80c. extra
11⁄16 to ¾ x Nos. 10, 11, 12.....	.90c. extra
9⁄16 to 5⁄8 x No. 9 to 3⁄16.....	1.00c. extra
9⁄16 to 5⁄8 x Nos. 10, 11, 12.....	1.10c. extra
7⁄16 to ½ x No. 9 to 3⁄16.....	1.30c. extra
7⁄16 to ½ x Nos. 10, 11, 12.....	1.40c. extra
3⁄8 x No. 9 to 3⁄16.....	1.50c. extra
3⁄8 x Nos. 10, 11, 12.....	1.60c. extra



# BEVELED EDGE BOX IRON Same as Light Bands of Same Sizes

OVAL IRON		Per 100 Lb.
$\frac{7}{8}$ to $1\frac{1}{2}$	.....	.40c. extra
$\frac{3}{4}$ to $\frac{13}{16}$	.....	.50c. extra
$\frac{5}{8}$ to $\frac{11}{16}$	.....	.60c. extra
$\frac{1}{2}$ to $\frac{9}{16}$	.....	.80c. extra
$\frac{3}{8}$ to $\frac{7}{16}$	.....	1.10c. extra
$\frac{1}{2}$ to $\frac{9}{16} \times \frac{3}{16}$	.....	1.00c. extra
$\frac{5}{8}$ to $\frac{11}{16} \times \frac{1}{8}$	.....	1.20c. extra

# HALF OVAL AND HALF ROUND

$2\frac{1}{4}$ to 3	.....	.60c. extra
$\frac{7}{8}$ to 2	.....	.50c. extra
$\frac{3}{4}$ to $\frac{13}{16}$	.....	.70c. extra
$\frac{5}{8}$ to $\frac{11}{16}$	.....	.90c. extra
$\frac{1}{2}$ to $\frac{9}{16}$	.....	1.20c. extra
$\frac{3}{8}$ to $\frac{7}{16}$	.....	2.50c. extra
$\frac{5}{16}$	.....	3.50c. extra
$\frac{1}{4}$	.....	4.50c. extra

Half oval, less than  $\frac{1}{4}$  their width in thickness, extra price.

# HORSE SHOE IRON

All sizes	.....	.01c. extra
Cutting to specified length, 2 ft. and over, 1/10c. extra.		

# RAIL STEEL BARS

(Rolled from Old Steel Rails)

Subject to the following extras, in cents per 100 lb., to be added to the base price per 100 lb.:

## For Size

Rounds, squares and flats, including deformed bars and twisted squares, take regular steel bar extras.

1 in. x 1 in. x  $\frac{7}{8}$  in. and larger angles, channels, flats, and cultivator beams..... Base

U-bars, regular channels, harrow I-bars, diamonds, triangulars,  $1\frac{1}{2}$  in.

x  $1\frac{1}{2}$  in. x  $\frac{3}{16}$  in. and larger, tees,  $\frac{3}{4}$  in. x  $\frac{3}{4}$  in. x  $\frac{1}{8}$  in. and

heavier, 1 in. x  $\frac{5}{8}$  in. x  $\frac{1}{8}$  in. and heavier angles, per 100 lb.....\$0.10

1 in. x 1 in. x  $\frac{3}{16}$  in. to  $1\frac{1}{4}$  in. x  $1\frac{1}{4}$  in. x  $\frac{3}{16}$  in. tees, per 100 lb..... .20

# SPRING STEEL EXTRAS

## Extras for Size

## Flat

$1\frac{1}{4}$ to 6 in. x No. 4 to $\frac{1}{2}$ in., inclusive	.....	Base
1 and $1\frac{1}{8}$ in. x No. 1 to No. 4, inclusive	.....	\$0.10
1 to 3 in. x No. 5 to No. 7, inclusive	.....	.25
$\frac{3}{4}$ and $\frac{15}{16}$ in. x No. 1 to No. 7, inclusive	.....	.25
$\frac{3}{8}$ to $\frac{11}{16}$ in. x No. 1 to No. 7, inclusive	.....	.50
$\frac{3}{4}$ to 3 in. x No. 8 to No. 10, inclusive	.....	.50
$\frac{3}{4}$ to 3 in. x No. 11 to No. 16, inclusive	.....	.75
$\frac{3}{4}$ to 3 in. x No. 17 to No. 20, inclusive	.....	1.10
$\frac{3}{8}$ to $\frac{5}{8}$ in. x No. 10 to No. 16, inclusive	.....	2.00
$\frac{3}{8}$ to $\frac{5}{8}$ in. x No. 17 to No. 20, inclusive	.....	2.50
$\frac{3}{8}$ to $\frac{5}{8}$ in. x No. 21 to No. 24, inclusive	.....	3.00

## SPRING STEEL EXTRAS (Continued)

### Round and Square

$\frac{5}{8}$ to $1\frac{1}{2}$ in., inclusive.....	Base
$\frac{1}{2}$ to $\frac{9}{16}$ in., inclusive.....	\$0.10
$\frac{3}{8}$ to $\frac{7}{16}$ in., inclusive.....	.25
$\frac{5}{16}$ in.....	.50
$\frac{1}{4}$ and $\frac{9}{32}$ in.....	.75

On Intermediate Sizes, the extra for next lighter size will apply.

### STEEL TIRE EXTRAS

1 in. x $\frac{1}{4}$ in. and heavier.....	Base
$1\frac{1}{2}$ in. x $\frac{3}{16}$ in. and $\frac{7}{32}$ in.....	.10c.
1 in. to $1\frac{7}{16}$ x $\frac{3}{16}$ and $\frac{7}{32}$ in.....	.15c.
1 in. to $1\frac{7}{16}$ x $\frac{1}{8}$ in.....	.25c.
$\frac{7}{8}$ in. x $\frac{1}{4}$ in.....	.15c.
$\frac{7}{8}$ in. x $\frac{3}{16}$ and $\frac{7}{32}$ in.....	.25c.
$\frac{7}{8}$ in. x $\frac{1}{8}$ and $\frac{5}{32}$ in.....	.30c.
$\frac{3}{4}$ in. x $\frac{1}{4}$ in.....	.15c.
$\frac{3}{4}$ in. x $\frac{3}{16}$ and $\frac{7}{32}$ in.....	.40c.
$\frac{3}{4}$ in. x $\frac{1}{8}$ and $\frac{5}{32}$ in.....	.50c.
$\frac{5}{8}$ in. x $\frac{3}{16}$ in.....	.50c.
$\frac{5}{8}$ in. x $\frac{1}{8}$ and $\frac{5}{32}$ in.....	.55c.

Extras are given in cents per lb.

For intermediate sizes, the next higher extra to be charged in all cases.

Sizes not shown are subject to special arrangement.

## STRUCTURAL STEEL

All Steel and Iron articles for structural and engineering purposes come under the heading of STRUCTURAL MATERIAL or SHAPES. They are: Beams, Angles with equal and unequal legs, Bulb Angles, Channels, Zee Bars and Tee Bars; also Steel or Iron Bars, such as: rounds, flats with square or round edges, ovals, half ovals, half rounds, hexagons, octagons, etc.

The requirements of specifications for shapes are the following:

1st: Net tonnage required.

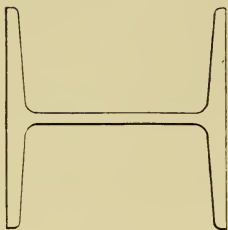
2nd: Exact dimensions, either in the metric or the customary system, giving the exact thickness of the shapes, the depth, the width, the length of the leg; also, if the shapes are to be made of iron or of mild steel.

3rd: Length desired, and if random lengths are acceptable, or whether the shapes are to be cut to exact length.

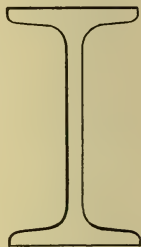
A very important factor pertaining to the specifications on Shapes for either structural or engineering purposes, is whether these shapes are to be used for the erection of bridges and buildings or for the construction of ships. Lloyd's, the British Corporation, and several other institutions of that character in the United States and abroad, have iron-clad rules as to the requirements in steel for the construction of ships, and it must always be stated whether the material desired is to be "Lloyd's quality," "British Corporation's" quality, "Italian Ships Specification," or the like. The sections specified for Ship Building are somewhat different from those for regular structural and engineering purposes, and there are several shapes manufactured for this purpose that are never used for any other work. In a general way, however, all the following information applies in the same way to regular structural as well as to ship shapes.

Quotations on all structural material are made at so much per 100 lb. *base*.

## BEAMS



**H-Beam**



**I-Beam**

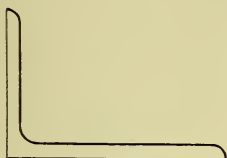
**Beams:** According to the depth of the beam and the width of the flange, beams are known as “I-Beams” where the depth of the beam exceeds the width of the flange, and as “H-Beams” where the width of the flange and the depth of the beam are equal.

“H-Beams” are specified only for certain special purposes, and when wanted, it should be distinctly emphasized. They are made only in four sections, to-wit: 4”, 5”, 6” and 8”, and in only one weight per section.

In order to satisfy the many and varied purposes of Structural Engineering, structural beams are made in several different weights of each standard section. It is therefore of extreme importance, when asking for quotations on structural beams, to specify the section, that is the *depth of the beam*, and along with it the weight per running foot, besides the length of beam desired. It is unnecessary to mention the width of the flange in Beams, as this is governed precisely by the weight.

The base sizes of beams are from 3” up to 15” inclusive; anything below 3” and over 15” will carry an extra, for which you will consult the extra list.

## ANGLES



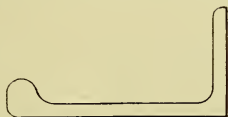
Round Root



Square Root

Angles are manufactured in two distinct standard makes, known as "Round-Root Angles," which is the common structural angle, and "Square-Root Angles," which is less common and specified for certain defined structural purposes. Round Root Angles are made with equal legs, where the width of each leg is the same, and with unequal legs, where the width of one leg is greater than that of the other. Square Root Angles are made only with equal legs, and straightcut edges.

The information required in specifications is the length of the angle bar, the thickness and width of the legs. When specifying equal leg angles, it is sufficient to mention one width of the leg (as the other is the same) and the thickness, for example: 4" x  $\frac{3}{16}$ ". With unequal leg angles, it is of course necessary to state definitely the size of each leg.

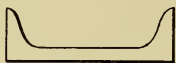


*Bulb Angles* are used mostly in the construction of ships, and sometimes in bridge construction. They are always made with unequal legs, the longer leg terminating with a bulb.

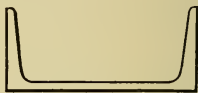
There are several other distinct sections of angles, such as: Round Back Angles, Ship Protection Angles, Track Angles, etc., all of which are required in special construction work, and their name should be distinctly mentioned in specifications.

Angles from 3" to 6" on one or both legs,  $\frac{1}{4}$ " thick and heavier, are base, and if less or more than 6" to 6" and  $\frac{1}{4}$ " thick will carry an extra.

## CHANNELS



**Structural**



**Ship**

Generally speaking, there are two distinct kinds of Channels, to wit: the STRUCTURAL Channels and the SHIP Channels with a distinct difference in construction. There are also Tire Channels, Car Building Channels and several other makes of minor note.

As in Beams, the information necessary when specifying Channels comprises the width of the Channel, the weight per running foot and the length. The width of flange and the web thickness, are governed by the weight.

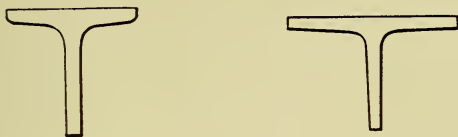
Channels from 3" to 5" inclusive are base, and below and above that, will carry extras as per list of extras.

## ZEE BARS



*Zee Bars*; State height of web, size of one flange (equal to hat of the other) and thickness, besides the length of the Bar.

## TEE BARS



Tees are made equal and unequal. An equal Tee is one where the width of the flange and the height of the stem are the same. Unequal Tees are those where the width of the flange is greater than the height of the stem, or, vice versa.

When specifying Equal Tees, it is necessary to give the size of the flange (which is equal to that of the stem), and the thickness; in Unequal Tees, it is necessary to give the widths of both flange and stem and the thickness. Besides this the length of the Tee Bars is also required. Tees below 3" on one or both sides, carry extras, varying according to size; 3" and larger carry 5¢ per 100 lbs.

## UNIVERSAL MILL PLATES

*Universal Mill Plates:* These are used for fabricating columns, trusses and other shapes. When ordering, state length, width and thickness.

On all structural material where other than standard mill lengths are specified, and where true lengths are required, an extra of 10¢ per 100 lbs., in addition to the base price is charged.

## EXTRAS

### STEEL STRUCTURAL SHAPES (3 in. and over)

Subject to the following list of extras (in cents per pound to be added to the base price per pound) recommended by the Committee on Steel and Steel Products of the American Iron and Steel Institute, November 13, 1917:—

Standard structural beams and channels, 3 in. to 15 in., inclusive.....	Base
Angles—structural sizes—3 in. to 6 in. on one or both legs, $\frac{1}{4}$ in. thick and over.....	Base
Zees—structural sizes.....	Base
Standard structural beams—over 15 in.....	10c. extra
Tees—structural sizes (excepting elevator, hand rail, car truck and conductor rail tees).....	.05c. extra
Bulb beams.....	.30c. extra
Bulb angles (not including special bulb angles for torpedo boat destroyers).....	.30c. extra
Cutting to lengths under 3 ft. to 2 ft., inclusive.....	.25c. extra
Cutting to lengths under 2 ft. to 1 ft., inclusive.....	.50c. extra
Cutting to lengths under 1 ft.....	1.55c. extra

No charge for cutting to lengths 3 ft. and over; all material is subject to the following tolerances:

	Over	Under
Beams and channels.....	$\frac{3}{8}$ in.	$\frac{3}{8}$ in.
Angles, tees, zeos and other shapes—sizes.....	$\frac{3}{4}$ in.	0 in.
Cold sawing to exact length.....		.25c. extra
Material subject to Navy Department inspection.....		.10c. extra
Navy Department high tensile steel.....		1.00c. extra

Charges for other than mill inspection, such as "Lloyd's" or "American Bureau of Shipping," for buyer's account.

Extras on special sections subject to determination.



## EXTRAS (Continued)

## ANGLES

1½ x 1½ in. and wider, but under 3 in. wide x ⅜ in. and heavier	.10c. extra
1½ x 1½ in. and wider, but under 3 in. wide x ⅛ in.	.15c. extra
1 x 1 to 1¼ x 1¼ in. x ⅜ in. and heavier	.15c. extra
1 to 1¼ x 1¼ x 18 in.	.20c. extra
⅞ x ⅞ in. x ⅜ in.	.20c. extra
⅞ x ⅞ in. x ⅛ in.	.25c. extra
¾ x ¾ in. x ⅜ in.	.25c. extra
¾ x ¾ in. x ⅛ in.	.30c. extra
⅝ x ⅝ in. x ⅛ in.	.110c. extra
⅝ x ⅝ in. x ⅜ in.	.130c. extra
½ x ½ in. x ⅛ in.	.160c. extra
½ x ½ in. x less than ⅛ in.	.180c. extra
3 in. on one or both legs by less than ¼ in. thick	.35c. extra

Unequal leg angles are subject to special prices, which will be furnished on application.

For intermediate sizes, the next higher extra to be charged in all cases.

## CHANNELS

1½ in. and wider, but under 3 in. wide x ⅜ in. and heavier	.15c. extra
1½ in. and wider, but under 3 in. wide x ⅛ in.	.25c. extra
1 to 1¼ in. x ⅜ in. and heavier	.25c. extra
1 to 1¼ in. x ⅛ in.	.35c. extra
1 to 1¼ in. x ⅜ in.	.50c. extra
¾ and ⅞ in. x ⅜ in. and heavier	.30c. extra
¾ and ⅞ in. x ⅛ in.	.40c. extra
¾ and ⅞ in. x ⅜ in.	.55c. extra
⅝ x ⅛ in. and heavier	.120c. extra
⅝ x ⅜ in.	.140c. extra
½ x ⅜ in. and heavier	.180c. extra
½ x ⅜ in.	.200c. extra

For intermediate sizes, the next higher extra to be charged in all cases.

## TEES

1½ x 1½ in. and wider, but under 3 in. wide x ⅜ in. and heavier	.20c. extra
1 x 1 to 1¼ x 1¼ x ⅜ in. and heavier	.40c. extra
1 x 1 to 1¼ x 1¼ x ⅛ in.	.50c. extra
⅞ x ⅞ x ⅜ in.	.50c. extra
⅞ x ⅞ x ⅛ in.	.60c. extra
¾ x ¾ x ⅜ in.	.60c. extra
¾ x ¾ x ⅛ in.	.70c. extra
⅝ x ⅝ x ⅛ in.	.130c. extra
½ x ½ x ⅛ in.	.180c. extra

Unequal leg tees are subject to special prices, which will be furnished on application.

For intermediate sizes, the next higher extra to be charged in all cases.

## PLATES

On inquiries and orders for Iron or Steel Plates, specifications must show the thickness (gauge), and size (width and length) of the plates. They must also state distinctly whether iron plates, or mild steel plates are required.

Plates are sold at so much 100-lbs. *base*, and the quality, the sizes and gauges are subject to extras, as follows:

Steel Plates up to 72" wide shall be considered one quarter inch plate, and are base. Steel Plates over 72" wide must be ordered  $\frac{1}{4}$ " thick, or not less than 11 lbs. per sq. ft. to take the base price. Steel plates over 72" wide ordered less than 11 lbs. per sq. ft. down to the weight of  $\frac{3}{16}$ " shall take the price of the  $\frac{3}{16}$ " plate, and carry an extra of 10¢ as per standard list.

In specifying plates, anything that is not a square or rectangular plate, is considered by the mills as a "Sketch" plate, and all of those, regardless of thickness and size, carry extras. Ordinary "Sketch" plates, including paper plate, will carry an extra.

Complete circles of 3' diameter will carry a 20¢ extra per 100 lbs. Boiler and tank steel plates will carry a 10¢ extra, marine steel carries a 40¢ extra, locomotive fire box steel 50¢ extra, all per 100 lbs., in addition to extra for size and gauge.

Rectangular plate conforming to Manufacturer's standard specification, or equivalent to  $\frac{1}{4}$ " thick in rolled and finished edge, 100" wide, down to and not including 6" wide, of which one dimension measures 36" or over, is base.

Practically the same information applies to ship plate, the only difference being that the material itself has the chemical analysis and physical properties of the steel conforming with the specifications laid down by Lloyd's, the British Corporation, etc. The extras for ship plates are the same as for other plates. The Test Certificate issued by Lloyd's or other Institution is for buyers' account.

## EXTRAS

### STEEL PLATES

Subject to the following list of extras (in cents per pound to be added to the base price per pound) recommended by the Committee on Steel and Steel Products of the American Iron and Steel Institute, November 13, 1917:—

#### Conditions

Rectangular Plates, Tank Steel,  $\frac{1}{4}$  in. thick and over on thinnest edge 100 in. wide and under, down to but not including 6 in. wide, are Base.

Plates up to 72 in. wide, inclusive, ordered 10.2 pounds per square foot, are considered  $\frac{1}{4}$  in. plates. Plates over 72 in. wide must be ordered  $\frac{1}{4}$  in. thick on edge, or not less than 11 pounds per square foot to take base price.

### EXTRAS (Continued)

Plates over 72 in. wide ordered less than 11 pounds per square foot down to the weight of  $\frac{3}{16}$  in. plates, as well as gage.

Allowable overweight, whether plates are ordered to gage or weight, to be governed by the Standard Specifications of the Association of American Steel Manufacturers.

#### WIDTHS

Widths over 100 in. to and including 110 in.....	.05c. extra
Widths over 110 in. to and including 115 in.....	.10c. extra
Widths over 115 in. to and including 120 in.....	.15c. extra
Widths over 120 in. to and including 125 in.....	.25c. extra
Widths over 125 in. to and including 130 in.....	.50c. extra
Widths over 130 in. to and including 135 in.....	1.00c. extra
Widths over 135 in. to and including 140 in.....	1.25c. extra
Widths over 140 in.....	1.50c. extra

#### GAUGES

Gauges lighter than $\frac{1}{4}$ in. to and including $\frac{3}{16}$ in. on thin edge up to 72 in. wide, inclusive.....	.10c. extra
Gauges lighter than $\frac{1}{4}$ in. to and including $\frac{3}{16}$ in. on thin edge over 72 in. wide to 84 in. wide, inclusive.....	.20c. extra
Gauges lighter than $\frac{1}{4}$ in. to and including $\frac{3}{16}$ in. on thin edge over 84 in. wide to 96 in. wide, inclusive.....	.30c. extra
Gauges lighter than $\frac{1}{4}$ in. to and including $\frac{3}{16}$ in. on thin edge over 96 in. wide to 100 in. wide, inclusive.....	.40c. extra
Gauges lighter than $\frac{1}{4}$ in. to and including $\frac{3}{16}$ in. on thin edge over 100 in. wide to 103 in. wide, inclusive.....	.45c. extra

#### GRADES

Pressing steel.....	.10c. extra
Flange steel (boiler grade).....	.15c. extra
Ordinary firebox steel.....	.20c. extra
Stillbottom steel.....	.30c. extra
Locomotive firebox steel.....	.50c. extra
"Marine" Steel.....	1.50c. extra
Material subject to Navy Department inspection.....	.10c. extra
High tensile hull steel to U. S. Navy Dept. or equivalent specifications.....	1.00c. extra
Navy Department boiler steel—Classes "A" and "B".....	1.50c. extra
Hull plates to hull specifications required to stand cold flanging take Extras for flange steel.	

#### CUTTING RECTANGULAR PLATES

Lengths 3 ft. and over.....	No extra
Lengths under 3 ft. to 2 ft., inclusive.....	.25c. extra
Lengths under 2 ft. to 1 ft., inclusive.....	.50c. extra
Lengths under 1 ft.....	1.55c. extra

#### REGULAR SKETCHES

(With not more than four straight cuts—including straight taper plates.)  
Lengths 3 ft. and over..... .10c. extra

#### IRREGULAR SKETCHES

(With more than four straight cuts)

Lengths 3 ft. and over.....	.20c. extra
Sketches sheared to a radius take Circle Extras.	

#### CIRCLES

Diameters 3 ft. and over.....	.25 per cent of base price
Half circles take Circles Extras.	

## RIVETS

Rivets are made in a large variety of sizes and lengths, and with many different styles of heads.

The smaller variety, such as Tinnern Rivets, Coopers Rivets, etc., are mostly packed in either five pound paper boxes, 100 in a case, or in boxes of 10, 25 and 50 pounds each. Sometimes they are put up in 100 or 200 pound kegs. Prices on these Rivets are usually quoted according to the way in which they are packed.

The larger Rivets, such as Boiler Rivets, Structural Rivets and Ship Rivets are quoted at so much per hundred pounds base. They are usually packed in kegs or boxes weighing approximately 200 to 300 pounds.

$\frac{3}{4}$ " to  $1\frac{1}{4}$ " Rivets inclusive from 2" to 5" long are base. Other sizes carry extras as per list.

When specifying Rivets state for what purpose they are to be used, the style of head wanted, and also the diameter and length of the Rivet measured from the shoulder of the head. The size of the packages in which they are to be put up is also necessary.

### SMALL RIVETS



Flat



Oval



Wagon Box



Truss

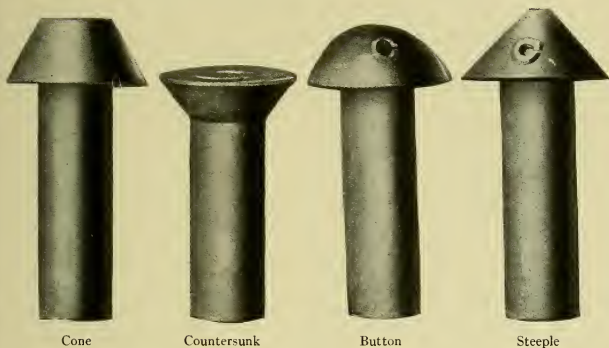


Cone



Countersunk

## LARGE RIVETS



### Extras per 100 Pounds

1. One-half inch and  $\frac{9}{16}$  inch diameter . . . . . \$0.50
2. Five-eighths inch and  $\frac{11}{16}$  inch diameter . . . . . .15
3. Rivets larger than  $1\frac{1}{4}$  inches in diameter . . . . . .25
4. Lengths 1 inch and shorter . . . . . .50
5. Lengths over 1 inch and under 2 inches . . . . . .25
6. Lengths over 5 inches . . . . . .25
7. Flat Head Rivets . . . . . .25
8. All Standard Countersunk Head Rivets . . . . . .25
9. Swell Neck Rivets . . . . . .25
10. Special Heads other than our regular standards,  
minimum charge . . . . . .25
11. Cold, or Hot Made Solid Die Rivets, when specially  
specified . . . . . .25
12. Annealing Cold Made Rivets,  $\frac{1}{2}$  inch diameter and  
larger . . . . . .35
13. Small orders for miscellaneous sizes for less than two  
tons to parties not under contract . . . . . .10
14. Rivets in 100 pound packages . . . . . .10
15. No shipments made of less than 100 pounds of a size.
16. All Cone and Countersunk Head Rivets to be charged at  
Boiler Rivet Price.
17. Cost of testing and inspection, if any, to be at customer's  
expense.
18. High Carbon, or Special Alloy Rivets, special extra price  
upon application.

## SHEET MILL PRODUCTS

### BLACK SHEETS

Are made for a great variety of purposes and are rolled from either Bessemer or Open Hearth Steel Bars, or from re-hammered charcoal iron.

There are various kinds of sheets known under the name of "Black Sheets," as follows:

Two Pass Cold Rolled.

Three Pass Cold Rolled.

Pickled and Annealed.

Tack Plate, etc.

Blue Annealed from #0 to #14 gauge inclusive.

Hot Rolled and Annealed.

One Pass Cold Rolled and Box Annealed or Black Sheets, #15 gauge to # 36 gauge.

All Black Steel Sheets are rolled in different gauges and cut to different sizes in accordance with the purpose for which they are to be used.

All above sheets are rolled in standard gauges ranging from "0000000" down to 36 gauge. Generally either Birmingham Wire Gauge or the United States Wire Gauge are specified.

The dimensions of the regular standard American products are about as follows:

Standard Lengths of 60", 72", 84", 96", 120" (1.52, 1.83, 2.15, 2.44 and 3.05 meters).

Standard widths are 24", 30", 36" and 48" (61, 76 and 91 cm.).

Sheets can also be obtained in special widths and lengths when so specified.

### GALVANIZED SHEETS

Regular Black Sheets of different gauges are used for making Galvanized Sheets and are put through the regular galvanizing process. There are two kinds of galvanized sheets, Plain and Corrugated.

Gauges, widths and lengths, are the same on Galvanized Sheets as on Black Sheets.

The standard corrugation for roofing sheets is 3". There are also various other corrugations, such as  $\frac{3}{16}$ ",  $\frac{5}{8}$ ",  $1\frac{1}{4}$ ", 2",  $2\frac{1}{2}$ " and 5" corrugations. In specifying corrugated sheets it is, therefore, very important to indicate how many and what size corrugations are to be contained in each sheet. For example,

in asking for  $\frac{5}{8}$ " sheets, specify thirty-nine to forty  $\frac{5}{8}$ " corrugations per sheet. If 3" corrugations are wanted, specify eight, or ten 3" corrugations per sheet, etc.

## TERNE PLATE

Terne Plates are made from charcoal iron, open hearth and Bessemer Steel. These plates are coated, the coating usually consisting of a mixture of 25% tin and 75% lead.

The grade and price of these plates vary in accordance with the lighter or heavier coating of tin and lead that is put on them. This coating usually amounts to 10, 15, 25, or 40 pounds per box of 20 x 28 plates, from 107 to 135 pounds.

There is a class of Terne Plates known as "Long Terne Sheets." These are made in from No. 14 to No. 30 gauge, in widths from 20" to 40", and in any length from 50" to 144" inclusive. The Long Terne Sheets are made in 8, 12, and 15 lb. coating, and are used in making automobile bodies, gasoline tanks, and cornice work, besides roofing.

There is finally another class of Terne Plate known in the market as "Black Coke Tin," which is specified generally for the manufacture of furnace pipes.

In inquires for this sort of material state the size of the pipe for which the sheets are wanted. 7" Pipe requires 20" x 23" sheets, 8" pipe requires 20" x 26", 9" pipe requires 20" x 29 $\frac{1}{2}$ ", 10" pipe requires 20" x 32 $\frac{1}{2}$ ", 11" pipe 20" x 36", and 12" pipe 20" x 39".

These plates are furnished in 90 lbs., 100 lbs., 107 lbs., 128 lbs., and 135 lbs., base, except the 20" x 36" and the 20" x 39", which are hardly made lighter than 107 lb. base.

All these sheets are packed 112 sheets to a box, except the 20" x 36" and the 20" x 39" or heavier than 107 lb. base, which are packed 56 sheets to the box for convenient shipping and handling.

## TIN PLATE

Although Tin Plate is a product similar to Black Sheets and Galvanized Sheets, etc., it is used for entirely different purposes. The standard sizes, weights and gauges as applied to Tin Plate are different from those applied to Black Sheets or other similar products. It is, therefore, necessary to state herein what is termed as Standard American gauges on Tin Plate:



# STANDARD AMERICAN GAUGES OF TIN PLATE

Trade Name	Size		No. of sheets	Net Weight per Box		Gross Weight per Box	
	Inches	m/m	Per Box	Lbs.	Kilos	Lbs.	Kilos
38 Ga. 55 lbs.	14x20	355x508	112	55	24.95	60	27.22
36 Ga. 65 "	14x20	355x508	112	65	29.48	70	31.75
70 "	14x20	355x508	112	70	31.75	75	34.02
75 "	14x20	355x508	112	75	34.02	80	36.29
80 "	14x20	355x508	112	80	36.29	85	38.55
85 "	14x20	355x508	112	85	38.55	90	40.82
90 "	14x20	355x508	112	90	40.82	95	43.10
95 "	14x20	355x508	112	95	43.10	101	45.81
100 "	14x20	355x508	112	100	45.36	106	48.08
IC 107 "	14x20	355x508	112	107	48.53	113	51.25
IX 135 "	14x20	355x508	112	135	61.23	142	64.41
IXX 155 "	14x20	355x508	112	155	70.31	163	73.94
IXXX 175 "	14x20	355x508	112	175	79.38	184	83.46
IXXXX 195 "	14x20	355x508	112	195	88.45	204	92.53
IC 107 "	14x18 <sup>3</sup> / <sub>4</sub>	355x476	124	110	49.90	116	52.62
IC 107 "	10x20	254x508	225	153	69.40	163	73.94

Generally speaking, plates heavier than 195 lbs. base (ixxxx) are sold at pound rates, unassorted only. But, if desired, primes and wasters will be packed separately and invoiced at the same price.

The United States standard widths and lengths of Tin Plate are:

14" x 20" and 20" x 28"

Tin Plate is generally packed in light wooden boxes each containing 56 sheets, 112 sheets, or 224 sheets per box, all boxes being iron strapped. Where tin lining is required, this will be charged extra at a cost of about 35¢ per base box, more or less, in accordance with the base price of tin plate.

"Base Box" is a trade term used to designate the Standard Package containing 112 sheets of 14" x 20" plates.

The above classified weights and gauges are all figured out on boxes containing 112 sheets of the 14" x 20" size. Therefore, in Tin Plate specified in widths and lengths of 20" x 28", the weight per gauge would necessarily be double. As an example, we may have customers inquiring for so many boxes IC. 14" x 20". These would weigh 107 lbs., and they may also inquire for IC. 20" x 28" in 112 sheets, which would then weigh 214 lbs., unless they want them in 56 sheets, in which case the boxes would weigh 107 lbs. These details should be carefully noted to avoid mistakes.



The basis of Tin Plates is best soft steel, either Bessemer or Open Hearth quality.

The terms Coke Tin Plate and Charcoal Tin Plate, are used simply to indicate the finish of these plates, that is: the lighter or heavier coating.

Coke indicates the lightest kind of coating.

Charcoal Plates have a heavier coating, and Charcoal "A," "AA," "AAA," "AAAA" and "AAAAA" each indicate an increasingly heavier coating of tin. There is also a special grade of Tin Plate made for dairy cans.

The most generally used Tin Plate is the American Coke Tin Plate and this is used for the manufacture of cans for packing all sorts of vegetables, fruits, tea, coffee and tobacco; although for cans for fruit packing we would recommend a charcoal grade. Its tin coating being heavier, it would better resist the action of the acid contained in the fruit.

In manufacturing Tin Plate, a certain per cent of "wasters" always accumulate. While Prime Plates are free from surface defects and of full dimensions ordered, Wasters show imperfections of various kinds, being mostly sheets with uncoated spots, with air bubbles or with an amount of coating accumulated at the edges; also, with turned up edges and other similar defects.

Most Manufacturers will insist, especially when quoting on large quantities, that the Purchaser take over not only the Prime Plates but the accruing Wasters as well. In such a case, the Wasters are assorted and packed separately, the price charged for the latter being generally between 25¢ to 45¢ per box less than the price charged for the Prime Plates. As a general average, the amount of Wasters accumulating does not exceed from 10 to 20%.

Tin Plate prices are computed on a surface measurement using 14"x20"—112 sheets—31,360 sq. inches in all—(in the metric system 355 x 508 mm. 20.23 sq. meters) as a *base box*. The base price is supplied for each weight shown in the above table.

To obtain the price for sizes other than those given above, you must find what ratio of surface inches such package contains, as compared with the base box and multiply each ratio by the base price.

For example, if the base price per box is \$8.00 for a 14" x 20"—112 sheets and you wish to figure out the price on 14" x 22"—112 sheets, multiply the ratio 1.10 by the base price of \$8.00 and the result will be \$8.80 per package. In the same way the net weight per package can be obtained by multiplying the ratio by the base weight.

To find the ratio of any given size, take the number of square inches and the total number of sheets per package of each given size and divide by 31,360, which is the total number of square inches of Tin Plate contained in the base box of 14" x 20"—112 sheets.

For example: 14" x 22"—112 sheets, equal to 34,496 square inches and that divided by 31,360 equal 1.10.

To find the cubic measurements of Tin Plate packages, which sometimes are wanted to figure out the cost of ocean freight, add two inches (51 mm) to the given width and length of sheets, and multiply the square by the following inches which represent the thickness of the package:

70 lbs. to 95 lbs. thickness	— 1.50" (38 m/m)
100 lbs. to 128 lbs. thickness	— 1.75" (44 m/m)
135 lbs. and heavier	— 2.00" (51 m/m)

## EXTRAS

### SHEETS

Subject to the following list of extras (in cents per 100 lb.) recommended by the Committee on Steel and Steel Products of the American Iron and Steel Institute, Nov. 20, 1917.

#### ONE PASS COLD ROLLED BLACK SHEETS

Gauge	Standard Differentials and Extras	Price per 100 Lb.
30.....		Add 20c.
29.....		Add 10c.
28 (Carload quantities).....		Base
27.....		Deduct 5c.
25-26.....		Deduct 10c.
22-24.....		Deduct 15c.
17-21.....		Deduct 20c.
15-16.....		Deduct 25c.
13-14.....		Deduct 30c.
10-12.....		Deduct 35c.

### STANDARD SIZES

Gauges Nos. 12 to 30, inclusive, 24, 26, 28 and 30 in. wide, by 72, 84, 96 and 120 in. long. Gauges Nos. 14 to 28, inclusive, 36 in. wide by 96 in. and 120 in. long.

See note under extras for boxing and crating.

#### EXTRAS FOR LENGTH

Gauge	Width	Extra per 100 Lb.
16 and heavier.....	60 in. and longer.....	Base
16 and heavier.....	Under 30 to 18 in.....	10c.
16 and heavier.....	Under 60 to 120 in.....	Base
17 to 18.....	Over 60 to 30 in.....	5c.
17 to 18.....	Over 120 to 132 in.....	5c.
17 to 18.....	Over 132 to 144 in.....	10c.
17 to 18.....	Under 60 to 30 in.....	5c.
17 to 18.....	Under 30 to 18 in.....	10c.
19 and lighter.....	Over 60 to 120 in.....	Base
19 and lighter.....	Over 120 to 144 in.....	10c.
19 and lighter.....	Under 60 to 30 in.....	10c.
19 and lighter.....	Under 30 to 18 in.....	20c.

### EXTRAS FOR WIDTH

Gauge		Width	Extra per 100 Lb.
16 and heavier.....		24 in. and wider.....	Base
16 and heavier.....	Under	24 to 12 in.....	10c.
16 and heavier.....	Under	12 to 6 in.....	15c.
17 to 18.....	Over	24 to 36 in.....	Base
17 to 18.....	Over	36 to 48 in.....	5c.
17 to 18.....	Under	24 to 12 in.....	10c.
17 to 18.....	Under	12 to 6 in.....	15c.
19 and lighter.....	Under	24 to 12 in.....	10c.
19 and lighter.....	Under	12 to 6 in.....	20c.
19 to 21.....	Over	24 to 36 in.....	Base
19 to 21.....	Over	36 to 44 in.....	15c.
19 to 21.....	Over	44 to 48 in.....	25c.
22 to 24.....	Over	24 to 36 in.....	Base
22 to 24.....	Over	36 to 40 in.....	20c.
22 to 24.....	Over	40 to 48 in.....	40c.
25 to 27.....	Over	24 to 36 in.....	Base
25 to 27.....	Over	36 to 40 in.....	20c.
25 to 27.....	Over	40 to 44 in.....	40c.
28.....	Over	32 to 36 in.....	10c.
28.....	Over	36 to 40 in.....	40c.
29 to 30.....	Over	32 to 36 in.....	10c.

### BLUE ANNEALED SHEETS

#### Standard Differentials and Extras

Gauge		Per 100 Lb.
8 and heavier.....		Less 5c.
9 and 10 (carload quantities).....		Base
11 and 12.....		Add 5c.
13 and 14.....		Add 10c.
15 and 16.....		Add 20c.

### EXTRAS FOR LENGTH

Gauge		Length	Extra per 100 Lb.
16 and heavier.....		60 in. and longer.....	Base
16 and heavier.....	Under	60 to 30 in.....	Add 5c.
16 and heavier.....	Under	30 to 18 in.....	Add 10c.

### EXTRAS FOR WIDTH

Gauge		Width	Extra per 100 Lb.
16 and heavier.....	Under	24 to 12 in.....	Add 5c.
16 and heavier.....	Under	12 to 6 in.....	Add 10c.
16 and heavier.....		24 in. and wider.....	Base

### GALVANIZED SHEETS AND LONG TERNE SHEETS

#### Standard Differentials and Extras for Gauge

Gauge		Per 100 Lb.
30.....		add 50c.
29.....		add 25c.
28 (carload quantities).....		Base
27.....		deduct 15c.
25-26.....		deduct 30c.
22-24.....		deduct 45c.
17-21.....		deduct 60c.
15-16.....		deduct 75c.
12-14.....		deduct 90c.
10-11.....		deduct \$1.00

# STANDARD SIZES

Gauges Nos. 12 to 30, inclusive, 24, 26, 28, 30 and 36 in. wide, by 72, 84, 96 and 120 in. long. Gages Nos. 14 to 28, inclusive, 36 in. wide by 96 in. and 120 in. long.

## EXTRAS FOR LENGTH

Gauge		Length	Extra per 100 Lb.
16 and heavier		60 to 144 in.	Base
16 and heavier	Under	60 to 30 in.	5c.
16 and heavier	Under	30 to 18 in.	10c.
17 to 18	Over	60 to 120 in.	Base
17 to 18	Over	120 to 132 in.	5c.
17 to 18	Over	132 to 144 in.	10c.
17 to 18	Under	60 to 30 in.	5c.
17 to 18	Under	30 to 18 in.	10c.
19 and lighter	Over	60 to 120 in.	Base
19 and lighter	Over	120 to 144 in.	10c.
19 and lighter	Under	60 to 30 in.	10c.
19 and lighter	Under	30 to 18 in.	20c.

## EXTRAS FOR WIDTH

Gauge		Width	Extra per 100 Lb.
10-15	Over	32 to 40 in.	None
	Over	40 to 44 in.	10c.
	Over	44 to 48 in.	20c.
16-18	Over	32 to 36 in.	None
	Over	36 to 44 in.	10c.
	Over	44 to 48 in.	20c.
19-21	Over	32 to 36 in.	None
	Over	36 to 40 in.	20c.
	Over	40 to 44 in.	30c.
	Over	44 to 48 in.	40c.
22-24	Over	32 to 36 in.	None
	Over	36 to 40 in.	20c.
	Over	40 to 44 in.	40c.
	Over	44 to 48 in.	60c.
25-26	Over	32 to 36 in.	Base
	Over	36 to 40 in.	30c.
	Over	40 to 44 in.	60c.
27	Over	32 to 36 in.	10c.
	Over	36 to 40 in.	50c.
	Over	40 to 44 in.	75c.
28	Over	32 to 36 in.	20c.
	Over	36 to 40 in.	60c.
29-30	Over	32 to 36 in.	20c.
24 and heavier	Under	24 to 12 in.	15c.
	Under	12 to 9 in.	25c.
25 and lighter	Under	24 to 12 in.	20c.
	Under	12 to 9 in.	35c.

See note under boxing and crating.

## WIRE AND WIRE PRODUCTS

Wire and Wire Products may be classified under two headings:

Semi Finished or Wire Rods, and Finished Wire.

*Wire Rods* are made of Bessemer, Basic Open Hearth, Crucible, Special Steels, Charcoal Iron and Horse Nail Steel, in sizes from No. 5 Gauge up to 1". Special sizes and shapes of Wire Rods can also be supplied.

*Finished Wire* is divided into different groups:

- Steel Market Wire
- Special Market Wire
- Spring Wire
- Music Wire
- Nail Wire
- Fence Wire
- Special and Miscellaneous Wire
- Barb Wire.

### STEEL MARKET WIRE

For General Purposes

Steel Market Wire is made in the following finishes: Plain annealed, bright, tinned, black varnished, coppered, tinned annealed, liquor bright, galvanized and painted. It is packed in catch weight or exact weight coils or bundles.

### SPECIAL MARKET WIRE

The following kinds of wire come under this heading:

- Baling Wire, annealed, in low and high carbon
- Bookbinders' Wire, round and flat
- Bottling Wire, tinned and galvanized
- Broom Wire, tinned
- Mattress Wire, tinned
- Stone Wire, annealed, bright, galvanized, coppered, liquor finish, tinned and tinned annealed.

Mattress, Broom and Bottling Wires are supplied in coils, measuring about 7", 12" or 16½" inside diameters. The coils vary in weight from about 3 lbs. to about 30 lbs. each. They are wrapped in paper and packed in paper lined barrels, each containing about 500 lbs. (227 kilos), net weight of wire, or in strong paper-lined casks, each containing about 560 to 570 lbs. (about 254 to 340 kilos) net. Also in tin-lined barrels or casks each containing about 550, 750, or 1120 lbs. (about 254, 340 or 540 kilos) net, for which an extra charge is made.

## SPRING WIRE

The following are classified under Spring Wires:

Acme Spring Wire, black and coppered  
Brown Spring Wire, black and coppered  
Premier Spring Wire, black, galvanized, coppered and  
tinned, round and square.

This wire is packed in about the same way as Special Market Wire.

## MUSIC WIRE

Piano Wire, polished, tinned and galvanized.  
Covering Wire, plain and plated, coppered steel and polished copper.

## NAIL WIRE

Nail Wire is made soft or hard; round, square, oval, triangular and grooved.

American Hard Nail Wire is made of Bessemer Steel and, while equally as tough, is found to be far superior and stronger than most of the European made wire for this purpose and consequently makes a better nail for both soft and hard wood. This is a very important fact to remember when American Nail Wire is in competition with European Nail Wire.

There is also a *Soft quality* of nail wire particularly suitable for the manufacture of nails with large heads, such as Slate, Clout and Lath Nails, and other special nails.

Nail Wire is packed in coils of different weight, much the same as all other wire.

## FENCE WIRE

While Fence Wire really belongs to the group of Miscellaneous Wires, we are describing it under a separate heading because considerable quantities of it are bought under that name.

Fence Wire is sold plain, galvanized and black varnished, and is made of hard, medium and soft steel, in any desired gauge; in catch-weight or exact weight bundles; single or nested coils, or, if so desired, in so-called "patent coils."

There is also a brand of Fence Wire called "Galvanized Coiled Spring Steel Fence Wire." This coiled wire is used for making fences of various forms, is made in gauges Nos. 7 to 12, inclusive, put up regularly in catch-weight bundles, but, if desired, can be furnished in bundles of special weight.

Where special bundles are desired, of, for instance, 53 lbs., or 24 kilos, or 42 kilos, or for that matter any special weight, to suit convenience or the conditions of travel in any particular country, they can be readily supplied.

Another class of Fence Wire is what is known as GALVANIZED HIGH TENSILE OVAL FENCE WIRE. This particular Fence Wire, which is much higher in price than any other, is made for the purpose of meeting the demands for Fence Wire of greater resisting power than the ordinary galvanized wire, as made by our American Mills. This Fence Wire is made of high carbon steel and oval shape; the advantage of the oval over the round wire is that the former is better visible than the latter for equal weight or given length. A further advantage of this oval high carbon Fence Wire is that, for instance, the 12 x 14 gauge wire will sustain considerable more weight without breaking than the No. 11 gauge of ordinary round galvanized wire; and 10 x 12 gauge more weight than the number 9 gauge round wire. Another advantage and a very important point to take into consideration is that the galvanized high tensile oval Fence Wire is not affected by expansion and contraction, due to variations in temperature, to the same extent as the ordinary grade of galvanized wire.

We mention these facts because in South America, especially on some of the large plantations in Argentine as well as in Cuba, Central America, etc., buyers often specify galvanized High Tensile Oval Fence Wire and are buying this kind of wire in large quantities, as they have learned from experience that this wire is far superior to all other wire made for the same purpose.

This wire can be had in the following standard sizes:

12 x 14	10 x 12
11 x 13	9 x 11

packed in coils of any desired weight, from 50 lbs., to 112 lbs., (22½ to 50 kilos) each in one continuous length.

### WIRE Extras on Plain Fence Wire in Coils

American Steel & Wire Co.'s Steel Wire Gauge	Extras per 100 Lb.	
	For Annealed Wire	For Galvanized Wire, Add to Price of Annealed
Nos. 6 to 9 inclusive.....	Base	\$0.70
No. 10.....	\$0.05	.70
No. 11.....	.10	.70
Nos. 12 and 12½.....	.15	.70
No. 13.....	.25	.70
No. 14.....	.35	.70
No. 15.....	.45	1.05
No. 16.....	.55	1.05

Annealed baling wire, in catch weight bundles, 10c. per 100 lb. extra over plain annealed fence wire. In even weight bundles, a further extra of 5c. per bundle.

Special galvanized, extra over ordinary galvanized, per 100 lb.: No. 14 and coarser, 50; Nos. 15 and 16, \$1.00.

Even weight bundles, 5c. per bundle extra, except 100 lb. bundles, which are considered standard and take no extra charge.

## SPECIAL AND MISCELLANEOUS WIRES

Under this heading a large variety of wire is classified and it would take entirely too much space to enumerate all that would come in this group. In view of this very fact orders or inquiries for wire in general, must state exactly for what purpose the wire is to be used, giving all details, so that we may quote on and furnish the proper kind of material.

All wire coming under this heading is coiled, packed and made in much the same manner as all other wire.

There are a number of different gauges, but the known Standard Gauges in the market today are the following:

U. S. Steel Wire Gauge.

Birmingham Wire Gauge (B.W.G.) also known as "Stub's Gauge."

The British Imperial Standard Wire Gauge (S.W.G.)

The American Wire Gauge or "Brown and Sharpe" Gauge (B & S).

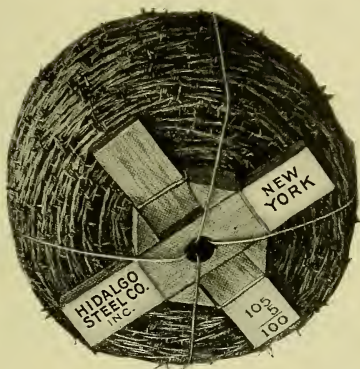
The Paris Gauge (J. deP.).

The subject of Gauges requires close and most painstaking attention, as often the difference between gauges is considerable, and errors in stating the right gauge may occasionally prove fatal.

All wires are sold at so much per 100 lbs. base, and are subject to extras for packing, for making coils and bundles in special weights, also for making the material to answer special specifications, physical and chemical analysis, etc.



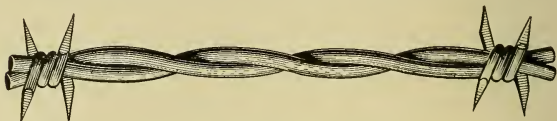




## BARB WIRE

There are four different kinds or brands of Barb Wire:

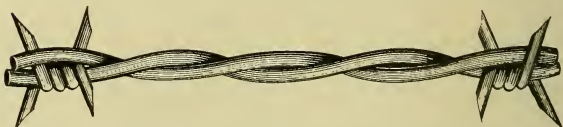
WAUKEGAN BRAND made in two point and four point



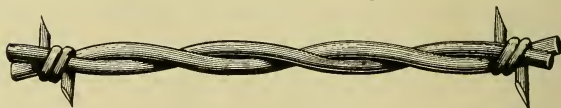
IOWA BRAND made only in four point



GLIDDEN BRAND made in two point and four point



BAKER PERFECT made in two point only



By two point and four point is meant that the Barb is made of either single or double staples, that is, having either two or four points per Barb.

As a general rule Barb Wire is made in three different gauges to-wit: No. 12, No. 13, and No. 14 gauge, although sometimes mills will agree to draw and manufacture Barb Wire to answer some foreign specifications outside of the above gauges.

There is a further distinction in Barb Wire which is to be found in the distance between the Barbs, some of it being made with three inches distance, some with five inches, and some again with six-inches distance between the barbs. Some of it, like the Glidden Four Point, is made also in  $1\frac{1}{2}$ " distance.

Barb Wire is sold principally in three finishes, i.e.: galvanized, black varnished and gray or black painted.

Barb Wire is supplied on either wooden reels with double or single cross-piece, or on steel rod spools, furnished from 28 lbs. to 125 lbs., ( $12\frac{1}{2}$  to 56 kilos) net weight.

## WIRE NAILS

Wire nails are manufactured in many styles from round, square, oval, triangular and also grooved wire.

The styles of nails are distinguished by the shape of the nail heads and also by the finish or deformations on the nail proper. Some nails, however, derive their trade name from the purpose for which they are used.

The cuts below illustrate most of the styles of nails, giving at the same time the Standard American sizes in which they are made.

### STYLES OF NAIL HEADS

FLAT SMOOTH



FLAT CHEQUERED



COUNTERSUNK CHEQUERED



ROUND OR CONVEX



COMMON BRAD



FLOORING BRAD



## SLATE NAILS



Gauge	Lengths furnished in inches					Approximate Diameter Heads
13	$\frac{3}{4}$	1	$1\frac{1}{4}$			$\frac{1}{4}$ inch
12	$\frac{3}{4}$	1	$1\frac{1}{4}$			$\frac{5}{16}$ "
11	1	$1\frac{1}{4}$	$1\frac{1}{2}$			$\frac{5}{16}$ "
10	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$\frac{3}{8}$ "
9	$1\frac{1}{2}$	$1\frac{3}{4}$	2			$\frac{7}{16}$ "

## CLOUT NAILS



Gauge	Lengths furnished in inches					Approximate Diameter Heads
14		$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$\frac{1}{4}$ inch
13	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$		$\frac{1}{4}$ "
12	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$\frac{5}{16}$ "
11	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$		$\frac{5}{16}$ "
10	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$\frac{3}{8}$ "
9	$1\frac{1}{2}$	$1\frac{3}{4}$	2			$\frac{7}{16}$ "

## LATH NAILS



Gauge	Lengths furnished in inches					Approximate Diameter Heads
14	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$		$\frac{7}{32}$ inch
13	1	$1\frac{1}{4}$	$1\frac{1}{2}$			$\frac{7}{32}$ "
12	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$		$\frac{9}{32}$ "
11	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2		$\frac{9}{32}$ "

Before going further let us mention that United States manufacturers of wire nails generally make nails to the U. S. G. (United States Steel wire gauge), The British Imperial Standard Gauge (S.W.G.), the Birmingham Wire Gauge (BWG) and are also prepared at times to accept Paris Gauge or the Millimeter Gauge. Most of the confusion in quoting on and supplying wire nails arises from the subject of gauge, and great care should always be exercised to avoid a misunderstanding by stating exactly the kind of gauge wanted. *Unless otherwise specified Standard American Gauge will be quoted on.*

Some requirements might call for a specially built nail, differ-

ing from the Standard styles either in width of head, length, finish, etc. In such cases and if all particulars are clearly given, we will endeavor to the best of our ability to supply just what is wanted, or the nearest specification to the one given, charging in proportion all the extras that are charged by our mills.

The chart below gives a comparison of the various gauges and it is best to consult this chart before deciding on the gauge desired.

### FULL SIZE OF WIRE Standard Steel Wire Gauge

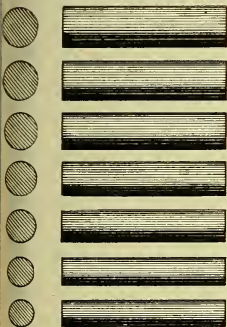
No. of  
Gauge

Deci-  
mal  
EQUIVA-  
lent

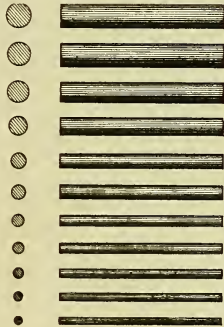
### FULL SIZE OF WIRE Standard Steel Wire Gauge

No. of  
Gauge

Deci-  
mal  
EQUIVA-  
lent



1	.2830
2	.2625
3	.2437
4	.2253
5	.2070
6	.1920
7	.1770



8	.1620
9	.1483
10	.1350
11	.1205
12	.1055
13	.0915
14	.0800
15	.0720
16	.0625
17	.0540
18	.0475

Besides gauge, length and style of nail, it is also important to mention the finish, such as galvanizing, cement-coating, sterilizing, chipping or barbing, etc.

When deciding on the style of nail wanted consult the cuts giving the names of the styles in accordance with the use of the nails, such as Flooring Nails, Lath Nails, Slate Nails, Roofing Nails, Hinge Nails, Tie Marking, etc.

Nails are always quoted per 100 lbs. base, different extras applying on various grades of nails for export and for domestic consumption. On nails for export generally a net price per 100 lbs. is preferred, and the price quoted to foreign customers invariably is a flat price including all extras.

## PACKING

Wire nails are generally packed in small wooden kegs in three standard weights according to the wishes of the customer, viz: 100 lbs., 112 lbs., or 133½ lbs., or in strong canvas bags weighing

56 to 112 lbs. gross. If special weights are wanted to suit unusual transportation conditions in foreign markets they can be supplied at extra charges. When so desired nails can be packed in paper packages, wooden cases, etc.

Carpet and bill board tacks, fine wire nails for frames, and other minute nails, come in small paper packages, so many per case.

Large nails and spikes come packed in kegs of 100, 112, 200 and 224 lbs., each, according to size.

## EXTRAS

### WIRE NAILS

Extras in accordance with the following standard nail card:

Extras on Standard Wire Nails in Kegs of 100 Lb.

Common Fence Shingle, Tobacco,  
Flooring and Common Brads.

#### Advances

20d to 60d.....	Base
10d to 16d.....	\$0.05
8d and 9d.....	.10
6d and 7d.....	.20
4d and 5d.....	.30
3d.....	.45
2d.....	.70
3½d.....	.40

#### Fine Nails

2d, extra fine, 1 x 17.....	\$1.10
2d, fine.....	1.00
3d, 1½ x 15.....	.50
3d, extra fine, 1½ x 16.....	.65
4d.....	.50

#### Barrel Nails

5⁄8 in.....	\$1.35
¾ in.....	1.00
7⁄8 in.....	.85
1 in.....	.70
1 1⁄8 in.....	.60
1 1⁄4 in.....	.50
1 3⁄8 in.....	.40
1 1⁄2 in.....	.30

#### Barbed Roofing Nails

¾ in.....	\$0.75
7⁄8 in.....	.65
1 in.....	.60
1 1⁄8 in.....	.60
1 1⁄4 in.....	.55
1 1⁄2 and 1 3⁄4 in.....	.45
2 in.....	.35

Barbed Common and Barbed Car  
Nails

15c. advance over common  
Casing, Siding and Smooth  
Box Nails

10d and larger.....	\$0.15
8d and 9d.....	.25
6d and 7d.....	.35
4d and 5d.....	.50
3d.....	.70
2d.....	1.00

#### Boat Nails

25c. extra over hinge Spikes

All sizes to 9 in.....	\$0.10
10 in. and larger.....	.25

Special gages 10c. additional  
Barbed Dowel Pins

5⁄8 in.....	\$1.25
¾ in.....	1.00
7⁄8 in.....	.85
1 in.....	.70
1 1⁄8 in.....	.60
1 1⁄4 in.....	.60
1 3⁄8 in.....	.60
1 1⁄2 in.....	.60

Special Extras on Standard Wire  
Nails

Annealed nails (except clinch and hinge), 15c. per 100 lb.  
Blued nails, 25c. per 100 lb.  
Special heads, 15c. per 100 lb.  
Special points, 15c. per 100 lb.  
Galvanizing all standard nails, at special prices.

## WIRE ROPE

In buying wire rope it is extremely important to state exactly what *QUALITY* of rope is wanted. The uses to which wire rope is put are many and varied. The rope is constructed in accordance with these many uses, different ways of laying the wires and strands being used to best meet the requirements of flexibility, strength, resistance to abrasion, etc. The cuts below will give an idea of the different ways of manufacturing:

Standard Flexible Wire Rope.



Special Flexible Hoisting Rope



Seale Lay Rope.



Extra Flexible Seale Lay Hoisting Rope



Extra Flexible Hoisting Rope



Tiller Rope



Standard Coarse Laid Rope



Galvanized Steel Mooring Lines



It is also well to remember that in addition to the varied methods of laying the wires and strands, another factor of importance regarding wire rope is the quality of the steel used for the wires

themselves. Standard Hoisting Ropes are made from five different grades, viz: Swedish Iron, Cast Steel, Extra Strong Crucible Cast Steel, Plow Steel and Improved Plow Steel.

### SWEDISH IRON

Swedish Iron Wire Rope is used principally for hoisting and counterweight service on elevators.

In many cases it has been found advantageous to substitute Steel for Iron Wire Rope, and in making such substitution it is well to use the same size of rope, thereby taking full advantage of the increased strength and wearing capacity of Steel over Iron.

### CRUCIBLE CAST STEEL

Crucible Cast Steel Wire Rope is the quality most commonly used for hoisting purposes. It is composed of six strands each of nineteen wires, making 114 wires laid around a hemp center. This construction makes a very pliable rope, which will wind on moderate-sized drums and sheaves.

This rope is used for hoisting in mines, for cable roads, inclined planes, elevators, etc.

### EXTRA STRONG CRUCIBLE CAST STEEL

Extra Strong Crucible Cast Steel is intermediate in quality between Crucible Cast Steel and Plow Steel Rope. Extra Strong Crucible Cast Steel can be substituted for Crucible Cast Steel when it is desirable to increase the factor of safety without change in drums or sheaves.

### PLOW STEEL

Plow Steel Rope is made of wire drawn from especially selected High Strength Steel. This rope is of great strength and toughness and is capable of resisting severe abrasion. Plow Steel Rope is recommended for Dredging, Logging, Coal and Ore Hoisting, Stump Pullers, Derricks, Wrecking Ropes, Heavy Cranes, and for all rough uses requiring great strength and toughness.

### IMPROVED PLOW STEEL

The wire from which this rope is made is drawn from selected material with such care and attention that it excels all others in uniformity, strength and toughness.

We especially recommend the use of this rope for long hoists or deep shafts, where the weight of the rope becomes a considerable part of the load.



## NUTS AND BOLTS

The many and various purposes for which Bolts are used have gradually developed a large variety in the style of heads, each adapted to its particular purpose.

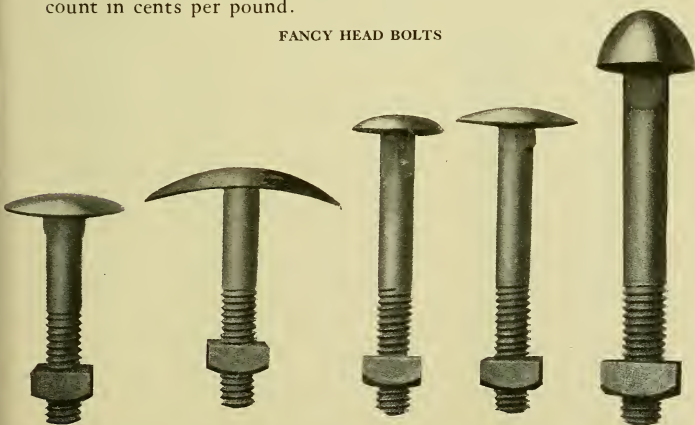
The bolts most generally used are the MACHINE or ENGINEERS BOLTS and the CARRIAGE BOLTS. The former are made with either Square or Hexagon head, Round Shank and Square or Hexagon Nut, while the latter are made with either Oval Head, (sometimes termed Cup Head) Countersunk Head or Bevel Head with a Square Neck and Square Nut. These are sold by list price and discount, such prices being made either by the number of pieces, i. e.: per hundred or per gross, according to whether American or English custom is followed, or by weight i. e.: 100 lbs., hundredweight (112 lbs.), or 100 kilos.

In specifying bolts, it is well to bear in mind the following rules for measurement:

All Square, Hexagon, Oval, Round, Cone, Round or Oval head with Square Neck, Square Head with Square Neck, or Elevator Bolts are measured from under head to point of bolt. All Plow Bolts, Bolt Ends and Countersunk Head Bolts, except Elevator Bolts, are measured from end to end overall. The specification should also state the style of thread required.

NUTS are made either by the hot-forged or cold-pressed method, and are furnished either Square or Hexagon, threaded or blank. In ordering these, where standard size is acceptable, the size of the bolt on which the nut is to be used should be stated. Nuts are sold at list price per pound, usually subject to a discount in cents per pound.

### FANCY HEAD BOLTS



Tee Head Shaft

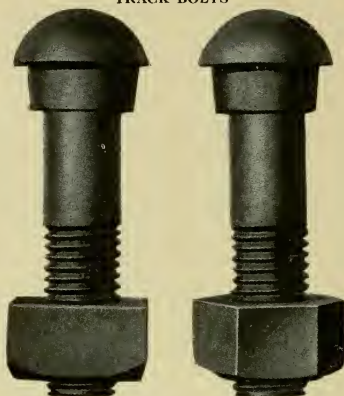
Step Head

Seat Bolt

Bastard Head

Cone Head

## TRACK BOLTS



With Square Nut

With Hexagon Nut

## STANDARD RAILROAD TRACK BOLTS

EXTRA AS FOLLOWS:

Diameter	Length	Per 100 Lb.	
		Square Nut	Hexagon Nut
1¼ in. to ¾ in.	3½ in.	Base	\$.30
	3¼ in.	\$.20	.40
	3 in.	.30	.50
	2¾ in.	.40	.60
	2½ in.	.50	.75
5⁄8 in.	3½ in.	.35	.55
	3¼ in.	.35	.60
	3 in.	.40	.65
	2¾ in.	.50	.75
	2½ in.	.60	.85
9⁄16 in. and ½ in.	2¼ in.	.75	1.00
	2 in.	.85	1.30
	2¾ in.	1.00	1.45
	2½ in.	1.15	1.60
	2¼ in.	1.20	1.75
7⁄16 in.	2 in.	1.35	1.90
	1¾ in.	1.55	2.10
	1½ in.	1.65	2.25
	2½ in.	1.55	2.00
	2¼ in.	1.75	2.20
3⁄8 in.	2 in.	1.95	2.40
	1¾ in.	2.15	2.60
	1½ in.	2.35	2.80
	2¼ in.	2.40	2.95
	2 in.	2.65	3.20
	1¾ in.	2.90	3.45
	1½ in.	3.15	3.70

Bolts with cut threads.....\$.10 per 100 lb.

Bolts with square recessed nuts......10 per 100 lb

Bolts with "Ideal" square recessed nuts..... .15 per 100 lb.

## CARRIAGE BOLTS



Oval Head  
Cup. Square, (Square)



Bevel Head



Countersunk Head

## MACHINE BOLTS



Hexagon Head and Nut



Square Head and Nut

## CONCRETE BARS

(Bars for Re-inforcing Concrete)

There are a number of different concrete bars and as a general rule they are classified as follows:

1st: *PLAIN BARS*

*Round, Square and Oval*

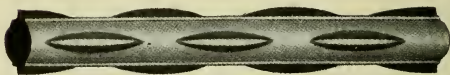
2nd: *DEFORMED BARS*

*Square Twisted, Oval Deformed, Spiral Bars*

*Corrugated Square, Corrugated Round*



Square Twisted Bar



Round Deformed Bar



Corrugated Round Bar

These bars are used for re-inforcing concrete work, and customers inquiring for this class of material must give detailed specification as to just what kind of concrete bars they want.

Plain concrete bars, round, square and oval bars, are made in different designs, that is: their surface is either plain or covered with star-like or diamond-like figures or other designs made on the surface and all around the bars for the purpose of having the concrete hold on to the bar.

Concrete bars are sold per 100 lbs., base and are manufactured in sizes ranging from  $\frac{1}{4}$ " up to 2" square or in diameter. All sizes and styles are subject to the standard list of extras for concrete bars.

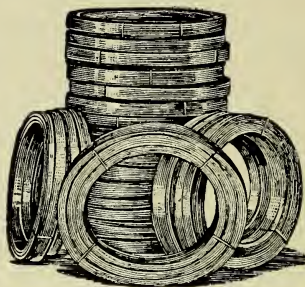
It might be added, that there are two kinds of bars made for concrete reinforcing work; one is made from new material, that is from Pig Iron up, in the regular process of manufacture, while the other is made from old rails, and is, of course, cheaper in price than new bars.

While for special purposes, engineers are rather adverse to accepting re-rolled material, that is, bars made from old beams or old rails, it may be said that concrete bars made from old rails, which show a high carbon percentage and are made of first class Bessemer or Open Hearth Steel, are better adapted for this kind of work.

Concrete bars made from old rails are generally known in the market as "RAIL CARBON STEEL BARS," and they have a high elastic limit, much higher than the concrete bars made from new material; they also have a higher tensile strength and a greater resisting quality.

Unless otherwise specified new concrete bars are shipped in what is known as "*structural steel grade*" having a minimum yield of 33,000 lbs., per square inch. Bars in "*Intermediate grade*" with a minimum yield of 40,000 lbs., per square inch. Bars of: "*Hardgrade*" with a minimum yield of 50,000 lbs., per square inch, will be supplied only when specified. All reinforcing bars are subject to standard regulations for test, analysis, finish and weight.

## HOOPS AND BANDS



Hoops and Bands are used for a great variety of purposes. For ordinary commercial purposes Hot Rolled Hoops made from soft steel are used.

It happens occasionally that Hoop Steel is mistaken for Strip Steel, or Cold Rolled Strips, which is more expensive and made of a far superior grade of steel.

In specifying Hoop Steel two main features must be emphasized, that is, the width of the hoop and the gauge or thickness. Aside from this the next in importance is the finish, namely, whether the hoops are wanted plain black, or galvanized, etc., and finally the mode of packing, with a definite statement as to the gross weight of package desired, and whether they are wanted packed in coils, barrels, scrolls, etc.

All hoop steel made in America is rolled only in the standard American hoop gauge, with practically no exception; but, as the dead-true thickness is of no great importance in hoops, it is sufficient to state the number of the gauge.

Hoop Steel is always quoted at so much per hundred pounds base. Over and above the base price quoted, extras are charged for width *and for gauge*.

When endeavoring to determine net price per hundred pounds add to the base price:

Extra for width, extra for gauge, and, finally, if any, extras for special packing.

### Extras for Cutting

No charge for shearing to specified lengths 5 feet and over.

Shearing to specified lengths over 2 feet to 5 feet, 10 cents per pound.

Shearing to specified lengths 2 feet and under, subject to special arrangement.

NOTE.—Extras are given in cents per pound.

### STEEL HOOP EXTRAS

Width Inches	Thickness		Extra for Size
	Gauge	Decimal	
$\frac{3}{8}$	13	.095	1.10c
$\frac{3}{8}$	14	.083	1.10
$\frac{3}{8}$	15	.072	1.20
$\frac{3}{8}$	16	.065	1.30
$\frac{3}{8}$	17	.058	1.45
$\frac{3}{8}$	18	.049	1.60
$\frac{7}{16}$	13	.095	.90
$\frac{7}{16}$	14	.083	.90
$\frac{7}{16}$	15	.072	.90
$\frac{7}{16}$	16	.065	1.00
$\frac{7}{16}$	17	.058	1.10
$\frac{7}{16}$	18	.049	1.35
$\frac{7}{16}$	19	.042	1.50
$\frac{1}{2}$	13	.095	.65
$\frac{1}{2}$	14	.083	.65
$\frac{1}{2}$	15	.072	.65
$\frac{1}{2}$	16	.065	.75
$\frac{1}{2}$	17	.058	.75
$\frac{1}{2}$	18	.049	.80
$\frac{1}{2}$	19	.042	.85
$\frac{1}{2}$	20	.035	.95
$\frac{1}{2}$	21	.032	1.15
$\frac{1}{2}$	22	.028	1.35
$\frac{9}{16}$	13	.095	.55
$\frac{9}{16}$	14	.083	.55
$\frac{9}{16}$	15	.072	.55
$\frac{9}{16}$	16	.065	.65
$\frac{9}{16}$	17	.058	.65

## HIDALGO STEEL COMPANY, INC., NEW YORK

Width Inches	Thickness		Extra for Size
	Gauge	Decimal	
$\frac{9}{16}$	18	.049	.70c
$\frac{9}{16}$	19	.042	.75
$\frac{9}{16}$	20	.035	.85
$\frac{9}{16}$	21	.032	1.00
$\frac{9}{16}$	22	.028	1.15
$\frac{9}{16}$	23	.025	1.35
$\frac{5}{8}$	13	.095	.50
$\frac{5}{8}$	14	.083	.50
$\frac{5}{8}$	15	.072	.50
$\frac{5}{8}$	16	.065	.60
$\frac{5}{8}$	17	.058	.60
$\frac{5}{8}$	20	.049	.65
$\frac{5}{8}$	19	.042	.70
$\frac{5}{8}$	20	.035	.80
$\frac{5}{8}$	21	.032	.95
$\frac{5}{8}$	22	.028	1.10
$\frac{5}{8}$	23	.025	1.30
$\frac{11}{16}$	13	.095	.45
$\frac{11}{16}$	14	.083	.45
$\frac{11}{16}$	15	.072	.45
$\frac{11}{16}$	16	.065	.55
$\frac{11}{16}$	17	.058	.55
$\frac{11}{16}$	18	.049	.60
$\frac{11}{16}$	19	.042	.65
$\frac{11}{16}$	20	.035	.75
$\frac{11}{16}$	21	.032	.90
$\frac{11}{16}$	22	.028	1.05
$\frac{11}{16}$	23	.025	1.25
$\frac{3}{4}$ to $\frac{13}{16}$	13	.095	.40
$\frac{3}{4}$ to $\frac{13}{16}$	14	.083	.40
$\frac{3}{4}$ to $\frac{13}{16}$	15	.072	.40
$\frac{3}{4}$ to $\frac{13}{16}$	16	.065	.50
$\frac{3}{4}$ to $\frac{13}{16}$	17	.058	.50
$\frac{3}{4}$ to $\frac{11}{16}$	18	.049	.55
$\frac{3}{4}$ to $\frac{11}{16}$	19	.042	.60
$\frac{3}{4}$ to $\frac{11}{16}$	20	.035	.65
$\frac{3}{4}$ to $\frac{11}{16}$	21	.032	.75
$\frac{3}{4}$ to $\frac{11}{16}$	22	.028	.95
$\frac{3}{4}$ to $\frac{11}{16}$	23	.025	....
$\frac{7}{8}$	13	....	1.20
$\frac{7}{8}$	14	.095	.30
$\frac{7}{8}$	15	.083	.30
$\frac{7}{8}$	16	.072	.30
$\frac{7}{8}$	17	.065	.35
$\frac{7}{8}$	18	.058	.40
$\frac{7}{8}$	19	.049	.40
$\frac{7}{8}$	20	.042	.45
$\frac{7}{8}$	21	.035	.55
$\frac{7}{8}$	22	.032	.65
$\frac{7}{8}$	23	.028	.85
$\frac{15}{16}$ to 1	13	.025	1.10
$\frac{15}{16}$ to 1	14	.095	.20
$\frac{15}{16}$ to 1	15	.083	.20



## HIDALGO STEEL COMPANY, INC., NEW YORK

Width Inches	Thickness		Extra for Size
	Gauge	Decimal	
$\frac{15}{16}$ to 1	16	.072	.20c
$\frac{15}{16}$ to 1	17	.065	.25
$\frac{15}{16}$ to 1	18	.058	.25
$\frac{15}{16}$ to 1	19	.049	.30
$\frac{15}{16}$ to 1	20	.042	.35
$\frac{15}{16}$ to 1	21	.035	.45
$\frac{15}{16}$ to 1	22	.032	.65
$\frac{15}{16}$ to 1	23	.028	.85
$1 \frac{1}{16}$ to $1 \frac{3}{8}$	13	.025	1.10
$1 \frac{1}{16}$ to $1 \frac{3}{8}$	14	.095	.15
$1 \frac{1}{16}$ to $1 \frac{3}{8}$	15	.083	.15
$1 \frac{1}{16}$ to $1 \frac{3}{8}$	16	.072	.15
$1 \frac{1}{16}$ to $1 \frac{3}{8}$	17	.065	.20
$1 \frac{1}{16}$ to $1 \frac{3}{8}$	18	.058	.25
$1 \frac{1}{16}$ to $1 \frac{3}{8}$	19	.049	.25
$1 \frac{1}{16}$ to $1 \frac{3}{8}$	20	.042	.30
$1 \frac{1}{16}$ to $1 \frac{3}{8}$	21	.035	.45
$1 \frac{1}{16}$ to $1 \frac{3}{8}$	22	.032	.65
$1 \frac{1}{16}$ to 2	13	.028	.85
$1 \frac{1}{16}$ to 2	14	.095	.10
$1 \frac{1}{16}$ to 2	15	.083	.10
$1 \frac{1}{16}$ to 2	16	.072	.10
$1 \frac{1}{16}$ to 2	17	.065	.10
$1 \frac{1}{16}$ to 2	18	.058	.15
$1 \frac{1}{16}$ to 2	19	.049	.20
$1 \frac{1}{16}$ to 2	20	.042	.25
$1 \frac{1}{16}$ to 2	21	.035	.50
$1 \frac{1}{16}$ to 2	22	.032	.70
$2 \frac{1}{16}$ to $2 \frac{1}{2}$	13	.028	.95
$2 \frac{1}{16}$ to $2 \frac{1}{2}$	14	.095	.10
$2 \frac{1}{16}$ to $2 \frac{1}{2}$	15	.083	.10
$2 \frac{1}{16}$ to $2 \frac{1}{2}$	16	.072	.10
$2 \frac{1}{16}$ to $2 \frac{1}{2}$	17	.065	.15
$2 \frac{1}{16}$ to $2 \frac{1}{2}$	18	.058	.20
$2 \frac{1}{16}$ to $2 \frac{1}{2}$	19	.049	.30
$2 \frac{1}{16}$ to $2 \frac{1}{2}$	20	.042	.40
$2 \frac{1}{16}$ to $2 \frac{1}{2}$	21	.035	.60
$2 \frac{1}{16}$ to $2 \frac{1}{2}$	22	.032	.90
$2 \frac{9}{16}$ to 3	13	.095	.10
$2 \frac{9}{16}$ to 3	14	.083	.10
$2 \frac{9}{16}$ to 3	15	.072	.10
$2 \frac{9}{16}$ to 3	16	.065	.15
$2 \frac{9}{16}$ to 3	17	.058	.20
$2 \frac{9}{16}$ to 3	18	.049	.30
$2 \frac{9}{16}$ to 3	19	.042	.40
$2 \frac{9}{16}$ to 3	20	.035	.60
$2 \frac{9}{16}$ to 3	21	.032	1.00
$3 \frac{1}{16}$ to $3 \frac{1}{2}$	13	.095	.10
$3 \frac{1}{16}$ to $3 \frac{1}{2}$	14	.083	.15
$3 \frac{1}{16}$ to $3 \frac{1}{2}$	15	.072	.20
$3 \frac{1}{16}$ to $3 \frac{1}{2}$	16	.065	.30
$3 \frac{1}{16}$ to $3 \frac{1}{2}$	17	.058	.40
$3 \frac{1}{16}$ to $3 \frac{1}{2}$	18	.049	.55

## HIDALGO STEEL COMPANY, INC., NEW YORK

Width Inches	Thickness		Extra for Size
	Gauge	Decimal	
3 $\frac{1}{16}$ to 3 $\frac{1}{2}$	19	.042	.75c
3 $\frac{1}{16}$ to 3 $\frac{1}{2}$	20	.035	1.00
3 $\frac{9}{16}$ to 4	13	.095	.10
3 $\frac{9}{16}$ to 4	14	.083	.15
3 $\frac{9}{16}$ to 4	15	.072	.20
3 $\frac{9}{16}$ to 4	16	.065	.30
3 $\frac{9}{16}$ to 4	17	.058	.45
3 $\frac{9}{16}$ to 4	18	.049	.70
3 $\frac{9}{16}$ to 4	19	.042	.90
4 $\frac{1}{16}$ to 5	13	.095	.15
4 $\frac{1}{16}$ to 5	14	.083	.20
4 $\frac{1}{16}$ to 5	15	.072	.30
4 $\frac{1}{16}$ to 5	16	.065	.50
4 $\frac{1}{16}$ to 5	17	.058	.75
5 $\frac{1}{8}$ to 5 $\frac{7}{8}$	13	.095	.20
5 $\frac{1}{8}$ to 5 $\frac{7}{8}$	14	.083	.30
5 $\frac{1}{8}$ to 5 $\frac{7}{8}$	15	.072	.50
5 $\frac{1}{8}$ to 5 $\frac{7}{8}$	16	.065	.80
5 to 6 $\frac{3}{4}$	13	.095	.30
6 to 6 $\frac{3}{4}$	14	.083	.40
6 to 6 $\frac{3}{4}$	15	.072	.60
6 to 6 $\frac{3}{4}$	16	.065	.90
7 to 8 $\frac{5}{8}$	13	.095	.35
7 to 8 $\frac{5}{8}$	14	.083	.50

Throughout this list Birmingham Wire Gauge and the corresponding decimal equivalents are used. Extras are given in cents per pound.

### Additional Extras

For cutting to specified lengths not less than 24 in..... .05c per lb.

For cutting to specified lengths 12 in. to 24 in..... .20c per lb.

Extra for cutting to specified lengths less than 12 in. will be furnished on application.

For rounding one end of cut hoop..... .05c per lb.

For rounding both ends of cut hoop..... .10c per lb.

## STRIP STEEL

Strip Steel is rolled either hot or cold in accordance with the specification. It is made in many different tempers, finished in different ways and for all kinds of purposes, such as stamping, deep drawing, plating, enamelling, making of saw blades, gauges, safety razor blades, corset stays, etc.

When ordering strip steel it is necessary, therefore, to mention besides the thickness or gauge, the width and the length, the kind of finish wanted and for what use it is intended, in order to insure getting the right kind of material and the hardness and finish best suited for the purpose.

Strip Steel in any standard width and gauge can be supplied either from warehouse or for prompt mill shipment. The price quoted will be the base price subject to the standard list of extras for size and gauge. According to size ordered, the material will be shipped either in rolls packed in burlap, or well oiled in cases. Special packing can be obtained upon request and will be charged at cost.

# COLD ROLLED STRIP STEEL

Extras to be added to base for size, annealing, cutting, packing, etc., as follows:

## EXTRA FOR THICKNESS

0.100-in. and thicker.....	Base
.050 to 0.099.....	\$0.20
.035 to .049.....	.45
.031 to .034.....	.60
.025 to .030.....	.80
.020 to .024.....	1.10
.017 to .019.....	2.10
.015 to .016.....	2.65
.013 to .014.....	3.30
.012.....	3.95
.011.....	4.20
.010.....	4.65

## EXTRAS FOR NARROW WIDTHS

Under 1½ in. to 1 in. inc.

0.100 and thicker to 0.035.....	\$0.25
.034 to .020.....	.40
.019 to .010.....	.50

Under 1 in. to ½ in. inc.

0.100 and thicker to 0.035.....	.45
.034 to .020.....	.60
.019 to .010.....	.70

## HOT ROLLED FINISHED STRIP STEEL

Under 0.20 Carbon

In coils, or cut to lengths 4 ft. to 16 ft., including shorter pieces that accrue in cutting.

Width	6 in. and Narrower	6 <sup>1</sup> / <sub>16</sub> in. 10 in.	10 <sup>1</sup> / <sub>16</sub> in. 15 in.	15 <sup>1</sup> / <sub>16</sub> in. and Wider	Slitting	Pickling
Gage 12 and heavier	Base	.10	.20	.30	.25	.25
13 gage.....	.10	.20	.30	.40	.25	.30
14 gage.....	.20	.30	.40	.50	.25	.35
15 gage.....	.30	.40	.50	...	.40	.40
16 gage.....	.40	.50	...	...	.40	.45
17 gage.....	.50	.60	...	...	.40	.50
18 gage.....	.60	.70	...	...	.55	.55
19 gage.....	.70	...	...	...	.55	.60
20 gage.....	.80	...	...	...	.55	.65

Cutting to lengths without end pieces..... 10 per cent extra

Cutting to lengths 2 ft.-4 ft..... 10c. per 100 lb. extra

Annealing..... 30c. per 100 lb. extra

## QUANTITY EXTRAS

Less than 2000 lb. to 1000 lb. inc..... 15c. per 100 lb. extra

Less than 1000 lb..... 35c. per 100 lb. extra

## COLD ROLLED AND COLD DRAWN STEEL

Cold rolled and cold drawn steel is made of steel of uniform quality, accurate to gauge and highly polished. The ends are either lathe or saw cut.

Stock of this steel is usually kept in the following sizes and lengths:

### SHAFTING

Rounds	$\frac{3}{16}$ " to $4\frac{1}{16}$ " diameter	} 16, 18, 20 and 24 feet lengths
Squares	$\frac{3}{16}$ " to $2\frac{9}{16}$ " diameter	
Hexagons	$\frac{1}{4}$ " to 2" diameter	

Free cutting machine screw stock is kept in the same sizes as shafting in lengths of 6, 8, 10, 12, 14, 16, 18, 20 and 24 feet.

Other sizes and lengths can be made to order.

Rounds for roller bearings, of a degree of hardness best suited to this particular purpose, are also made to order.

Octagons are regularly made in sizes of  $\frac{3}{16}$ ",  $\frac{3}{4}$ ", 1",  $1\frac{1}{16}$ " and  $1\frac{5}{8}$ ".

Flats and round-edged flats can be furnished in sizes ranging from  $\frac{3}{16}$ " to  $3\frac{3}{16}$ " in width, and from  $\frac{1}{8}$ " to  $1\frac{15}{16}$ " in thickness. However, as the limits of one depend on the limits of the other, it is necessary to submit specifications of sizes wanted before we can determine whether they can be supplied.

## EXTRAS

### COLD ROLLED AND COLD DRAWN STEEL ROUNDS

		Per Pound			Per Pound
$\frac{1}{16}$ to $\frac{3}{32}$	.....	\$0.10	2 to 3	.....	\$0.05
$\frac{1}{8}$ to $\frac{5}{32}$	.....	.09 $\frac{1}{2}$	$3\frac{1}{16}$ to $3\frac{7}{16}$	.....	.05 $\frac{1}{2}$
$\frac{3}{16}$ to $\frac{7}{32}$	.....	.07 $\frac{1}{2}$	$3\frac{1}{2}$ to $3\frac{15}{16}$	.....	.05 $\frac{3}{4}$
$\frac{1}{4}$ to $\frac{3}{8}$	.....	.06 $\frac{1}{2}$	4 to $4\frac{7}{16}$	.....	.06
$\frac{7}{16}$ to $\frac{9}{16}$	.....	.06	$4\frac{1}{2}$ to $4\frac{15}{16}$	.....	.06 $\frac{1}{2}$
$\frac{5}{8}$ to $1\frac{1}{16}$	.....	.05 $\frac{3}{4}$	5 to $5\frac{7}{16}$	.....	.07
$\frac{3}{4}$ to $1\frac{7}{16}$	.....	.05 $\frac{1}{2}$	$5\frac{1}{2}$ to $5\frac{15}{16}$	.....	.07 $\frac{3}{4}$
$1\frac{1}{2}$ to $1\frac{15}{16}$	.....	.05 $\frac{1}{4}$	6	.....	.08 $\frac{1}{4}$

Prices on rounds larger than 6-inch will be quoted on application. All shafts  $3\frac{3}{16}$  inch and larger turned and polished.

### FLATS

Prices given are in cents per pound.

Thickness in Inches	$\frac{1}{4}$	$\frac{5}{16}$ to $\frac{1}{2}$	$\frac{9}{16}$ to $2\frac{23}{32}$	$\frac{3}{4}$ to 1	$1\frac{1}{16}$ to $1\frac{1}{2}$	$1\frac{5}{16}$ to 3	Wider than 3
$\frac{3}{32}$ .....	20	18	18	14	12	..	..
$\frac{1}{8}$ and $\frac{5}{32}$ .....	20	18	18	14	12	10	10
$\frac{3}{16}$ to $\frac{5}{16}$ .....	18	16	16	12	10	8	10
$\frac{3}{8}$ to $\frac{7}{16}$ .....	..	14	14	10	10	8	10
$\frac{1}{2}$ to $\frac{9}{16}$ .....	..	..	10	8	8	8	10
$\frac{5}{8}$ to $1\frac{1}{16}$ .....	..	..	10	8	8	8	10
$\frac{3}{4}$ to $1\frac{5}{16}$ .....	..	..	..	8	8	8	10
1 to $1\frac{7}{16}$ .....	..	..	..	..	8	8	10
$1\frac{1}{2}$ to $1\frac{11}{16}$ .....	..	..	..	..	..	8	10
$1\frac{3}{4}$ to $1\frac{15}{16}$ .....	..	..	..	..	..	8	10
2 to $2\frac{15}{16}$ .....	..	..	..	..	..	8	10

**COLD ROLLED AND COLD DRAWN STEEL—Continued**
**SQUARES AND HEXAGONS**

	Per Pound		Per Pound
$\frac{1}{8}$ to $\frac{5}{32}$ .....	\$0.14	$\frac{11}{16}$ to $\frac{13}{16}$ .....	\$0.07 $\frac{1}{2}$
$\frac{3}{16}$ to $\frac{7}{32}$ .....	.12	$\frac{7}{8}$ to 2.....	.07
$\frac{1}{4}$ to $\frac{5}{16}$ .....	.10	$2\frac{1}{16}$ to $2\frac{7}{16}$ .....	.08
$\frac{3}{8}$ to $\frac{7}{16}$ .....	.09	$2\frac{1}{2}$ to 3.....	.08 $\frac{1}{2}$
$\frac{1}{2}$ to $\frac{5}{8}$ .....	.08 $\frac{1}{2}$	$3\frac{1}{16}$ to 4.....	.09

**SHAFTING—EXTRAS ON ROUNDS:**

List prices on sizes smaller than  $\frac{3}{4}$ " apply on screw stock quality in random mill lengths only. All other qualities or screw stock cut to accurate lengths—15c. per 100 lb. net extra, in addition to usual extras for accuracy, short and long lengths and special carbon.

**EXTRAS FOR SPECIAL AND HIGH CARBON OPEN HEARTH STEELS**

Specified analysis—carbon .30% and less.....	25c. per 100 lb. net
Specified analysis—phos. and sul., .05% max.....	25c. per 100 lb. net
Specified analysis—carbon .30% and less, sulphur guaranteed (under .05%).....	50c. per 100 lb. net
Specified analysis—carbon .31% to .50%.....	50c. per 100 lb. net

**BOXING AND BURLAPING**

Boxing (minimum 50c.).....	\$0.20 per 100 lb.
Burlaping (minimum 25c.), full length.....	.15 per 100 lb.
Burlaping of ends only.....	.05 per 100 lb.

## RAILS

Steel Rails are generally specified as either Bessemer or Open Hearth Steel, the latter being always about \$2 to \$3 per gross ton higher in price than the Bessemer.

In sending specifications for Steel Rails, always be sure what section is wanted. The generally adapted section today is the AMERICAN STANDARD CIVIL ENGINEER'S SECTION, which is denoted with initials, A.S.C.E.

The principal item in specifications for rails is the weight in pounds per running yard, or in kilos per running meter.

The American sections run in the following weights per yard: 12, 15, 16, 20, 25, 30, 40, 45, 50, 55, 56, 58, 60, 65, 66, 67, 70, 72, 75, 80, 85, 90, 95, 100, 110, 120, and 130 lbs.

There is also a 140 and 150 lb. rail, but, as a rule, the rails above 95 lbs. are used only for Passenger Stations and Terminals.

To be able to quote we must have definite and detailed specifications, such as:

Quantity desired

Weights per yard (or meter)

Lengths

What accessories are wanted, such as bolts and nuts, fish plates, tie plates, angle bars, etc., and whether accessories are to be weighed in or separately.

The price quoted on rails is always per gross ton and on rails only, not including any accessories unless specially stated.

If a price is wanted on accessories also, it will be necessary to advise fully just what accessories are wanted.

Splice Bars are generally sold in pairs, while Bolts and Nuts are sold per set.

Rails are usually shipped in random lengths. If customers want the rails cut to an exact length this can be done at an extra charge of from \$2.00 to \$3.00 per gross ton.

## EXTRAS

### LIGHT RAILS (45 LB. PER YARD AND UNDER)

Per 100 Lb.  
Extra

Subject to following list of extras and differentials for size, quantity, etc.:	
25 lb. to 45 lb. per yd., inclusive, full carload lots.....	Base
16 lb. and 20 lb. per yd., full carload lots.....	\$0.045
12 lb. and 14 lb. per yd., full carload lots.....	.090
8 lb. and 10 lb. per yd., full carload lots.....	.135

### EXTRAS FOR LENGTH

Special lengths down to, but not including 12 ft.....	\$0.09
Special lengths 12 ft. and under.....	.225
For all 30-ft. lengths.....	.045

# Rails and Fastenings per Mile of Single Track

Rails 30'-0" with 10% Shorts to 24'-0"

RAILS		SPLICE BARS				BOLTS				SPIKES		Total of Rails and Fastenings	
Weight per Yard	G. Tons	Section Number	Num-ber of Pairs of Bars	Length		Weight		Number		Weight		Ties, 24" C-C, No. 10, 560	G. Tons
				Six Holes per Joint	Four Holes per Joint	Six Holes per Joint	Four Holes per Joint	Six per Joint	Four per Joint	Six per Joint	Four per Joint		
Lbs.		No.	No.	Ins.	Ins.	G. Tons	G. Tons	No.	No.	Ins.	Ins.	Size	G. Tons
100	157.14	356	356	34	24	14.17	10.01	2.136	1.424	.87	.58	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
100	157.14	356	356	34	24	14.72	10.39	2.136	1.424	.87	.58	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
100	157.14	306	356	34	24	12.73	8.98	2.136	1.424	.87	.58	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
100	157.14	430	356	34	24	16.93	11.95	2.136	1.424	.87	.58	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
95	149.29	386	356	34	24	13.19	9.31	2.136	1.424	.83	.55	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
90	141.43	441	356	34	24	13.03	9.22	2.136	1.424	.83	.55	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
90	141.43	460	356	34	24	15.01	10.59	2.136	1.424	.83	.55	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
90	141.43	355	356	34	24	12.21	8.62	2.136	1.424	.83	.55	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
85	133.57	341	356	34	24	11.27	7.95	2.136	1.424	.83	.55	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
85	133.57	315	356	34	24	10.93	7.72	2.136	1.424	.83	.55	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
85	133.57	426	356	34	24	12.34	8.71	2.136	1.424	.80	.53	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
80	125.71	315	356	34	24	10.93	7.72	2.136	1.424	.80	.53	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
80	125.71	318	356	34	24	10.28	7.26	2.136	1.424	.80	.53	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
75	117.86	317	356	34	24	9.65	6.81	2.136	1.424	.77	.51	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
72	113.14	316	356	34	24	10.19	7.20	2.136	1.424	.77	.51	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
70	110.00	339	356	34	24	9.08	6.41	2.136	1.424	.77	.51	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
70	110.00	459	356	34	24	10.17	7.19	2.136	1.424	.80	.53	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
67	105.29	246	356	34	24	8.77	6.19	2.136	1.424	.77	.51	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
65	102.14	342	356	34	24	8.77	6.19	2.136	1.424	.77	.51	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
65	102.14	340	356	34	24	8.29	5.85	2.136	1.424	.74	.50	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
60	94.29	340	356	34	24	7.59	5.36	2.136	1.424	.74	.50	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
60	94.29	221	356	34	24	7.04	4.97	2.136	1.424	.72	.48	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
58	88.00	221	356	34	24	4.97	4.86	2.136	1.424	.72	.48	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
56	88.00	247	356	34	24	6.89	4.86	2.136	1.424	.74	.50	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
55	86.43	357	356	34	24	6.89	4.86	2.136	1.424	.74	.50	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
50	78.57	363	356	34	24	5.94	4.20	2.136	1.424	.72	.48	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
45	70.71	385	356	34	20	4.03	3.08	2.136	1.424	.46	.46	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
40	62.86	381	356	34	20	2.65	2.65	2.136	1.424	.46	.46	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
35	55.00	452	356	34	20	2.06	2.06	2.136	1.424	.46	.46	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
35	55.00	451	356	34	17	2.07	1.58	2.136	1.424	.46	.46	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
30	47.14	453	356	34	17	1.79	1.38	2.136	1.424	.29	.29	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
30	47.14	453	356	34	17	1.79	1.38	2.136	1.424	.27	.27	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
25	39.29	453	356	34	17	1.38	1.38	2.136	1.424	.26	.26	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
20	31.43	456	356	34	16	.80	.80	2.136	1.424	.14	.14	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
16	25.14	457	356	34	16	.72	.72	2.136	1.424	.14	.14	$\frac{3}{8} \times 5\frac{1}{2}$	2.62
12	18.86	458	356	34	14	.51	.51	2.136	1.424	.13	.13	$\frac{3}{8} \times 5\frac{1}{2}$	2.62

No allowance for Nut-Locks in Length of Bolts.

No excess allowed in the number of Bolts or Spikes



# Rails and Fastenings per Mile of Single Track

Rails 30'-0" with 10% Shorts to 24'-0"

RAILS		SPLICE BARS										BOLTS				SPIKES		Total of Rails and Fastenings	
Weight per Yard	Section Number	Num-ber of Pairs of Bars	Length		Weight		Size	Number		Weight		Ties, 24" C-C, No. 10,560	Ins.	G. Tons	Six Bolt Splices	Four Bolt Splices			
			Six Holes per Joint	Four Holes per Joint	Six Holes per Joint	Four Holes per Joint		Six per Joint	Four per Joint	G. Tons	G. Tons								
G. Tons	No.	No.	Ins.	Ins.	G. Tons	G. Tons	Ins.	No.	No.	G. Tons	G. Tons	Ins.	G. Tons	G. Tons	G. Tons	G. Tons			
157.14	356	325	34	24	12.94	9.13	3/4 x 1 1/2	1,950	1,300	.79	.53	9/16 x 5 1/2	2.62	173.49	173.49	169.42			
100	425	325	34	24	13.44	9.49	3/4 x 1 1/2	1,950	1,300	.79	.53	9/16 x 5 1/2	2.62	173.99	173.99	169.78			
157.14	306	325	34	24	11.62	8.20	3/4 x 1 1/2	1,950	1,300	.79	.53	9/16 x 5 1/2	2.62	172.17	172.17	168.49			
100	430	325	34	24	15.47	10.91	3/4 x 1 1/2	1,950	1,300	.79	.53	9/16 x 5 1/2	2.62	176.02	176.02	171.20			
95	386	325	34	24	12.04	8.50	3/4 x 1 1/2	1,950	1,300	.76	.50	9/16 x 5 1/2	2.62	164.71	164.71	160.91			
90	441	325	34	24	11.92	8.42	3/4 x 1 1/2	1,950	1,300	.76	.50	9/16 x 5 1/2	2.62	156.73	156.73	152.97			
90	460	325	34	24	13.73	9.69	3/4 x 1 1/2	1,950	1,300	.76	.50	9/16 x 5 1/2	2.62	158.54	158.54	154.24			
90	355	325	34	24	11.15	7.87	3/4 x 1 1/2	1,950	1,300	.76	.50	9/16 x 5 1/2	2.62	155.96	155.96	152.42			
85	341	325	34	24	10.29	7.26	3/4 x 1 1/2	1,950	1,300	.76	.50	9/16 x 5 1/2	2.62	147.24	147.24	143.45			
85	315	325	34	24	9.98	7.05	3/4 x 1 1/2	1,950	1,300	.76	.50	9/16 x 5 1/2	2.62	146.93	146.93	143.74			
85	426	325	34	24	11.27	7.95	3/4 x 1 1/2	1,950	1,300	.76	.50	9/16 x 5 1/2	2.62	148.22	148.22	144.64			
80	364	325	34	24	9.78	6.91	3/4 x 1 1/2	1,950	1,300	.73	.49	9/16 x 5 1/2	2.62	138.84	138.84	135.73			
80	315	325	34	24	9.98	7.05	3/4 x 1 1/2	1,950	1,300	.73	.49	9/16 x 5 1/2	2.62	139.04	139.04	135.87			
80	325	325	34	24	9.39	6.63	3/4 x 1 1/2	1,950	1,300	.73	.49	9/16 x 5 1/2	2.62	138.45	138.45	135.45			
75	317	325	34	24	8.31	6.22	3/4 x 1 1/2	1,950	1,300	.73	.49	9/16 x 5 1/2	2.62	130.50	130.50	127.19			
75	318	325	34	24	8.31	6.27	3/4 x 1 1/2	1,950	1,300	.71	.47	9/16 x 5 1/2	2.62	130.02	130.02	127.52			
72	316	325	34	24	8.29	5.85	3/4 x 1 1/2	1,950	1,300	.73	.49	9/16 x 5 1/2	2.62	124.78	124.78	122.10			
70	339	325	34	24	8.22	5.80	3/4 x 1 1/2	1,950	1,300	.71	.47	9/16 x 5 1/2	2.62	121.55	121.55	118.89			
70	459	325	34	24	9.29	6.56	3/4 x 1 1/2	1,950	1,300	.71	.47	9/16 x 5 1/2	2.62	122.62	122.62	119.65			
70	316	325	34	24	8.29	5.85	3/4 x 1 1/2	1,950	1,300	.73	.49	9/16 x 5 1/2	2.62	121.64	121.64	118.96			
67	246	325	34	24	8.01	5.65	3/4 x 1 1/2	1,950	1,300	.73	.49	9/16 x 5 1/2	2.62	116.65	116.65	114.05			
65	102.14	325	34	24	8.01	5.65	3/4 x 1 1/2	1,950	1,300	.71	.47	9/16 x 5 1/2	2.62	113.48	113.48	110.88			
65	342	325	34	24	7.57	5.35	3/4 x 1 1/2	1,950	1,300	.71	.47	9/16 x 5 1/2	2.62	113.04	113.04	110.58			
60	94.29	325	34	24	6.93	4.89	3/4 x 1 1/2	1,950	1,300	.68	.45	9/16 x 5 1/2	2.62	104.52	104.52	102.25			
60	94.29	325	34	24	6.43	4.54	3/4 x 1 1/2	1,950	1,300	.65	.44	9/16 x 5 1/2	2.62	103.99	103.99	101.89			
56	88.00	221	325	34	6.43	4.54	3/4 x 1 1/2	1,950	1,300	.65	.44	9/16 x 5 1/2	2.33	97.41	97.41	95.31			
58	91.14	247	325	34	6.29	4.44	3/4 x 1 1/2	1,950	1,300	.65	.44	9/16 x 5 1/2	2.33	100.41	100.41	98.35			
58	247	325	34	24	6.29	4.44	3/4 x 1 1/2	1,950	1,300	.65	.44	9/16 x 5 1/2	2.33	97.27	97.27	95.21			
55	86.43	357	325	34	6.29	4.44	3/4 x 1 1/2	1,950	1,300	.68	.45	9/16 x 5 1/2	2.33	95.73	95.73	93.65			
55	363	325	34	24	5.43	3.83	3/4 x 1 1/2	1,950	1,300	.65	.44	9/16 x 5 1/2	2.33	86.98	86.98	85.17			
45	70.71	385	325	34	.....	2.81	3/8 x 3	.....	1,300	.....	.42	9/16 x 5 1/2	2.33	76.27	76.27	76.27			
40	62.86	381	325	.....	2.0	2.42	3/8 x 3	.....	1,300	.....	.42	9/16 x 5 1/2	2.33	68.03	68.03	68.03			
40	62.86	398	325	.....	1.88	1.89	3/8 x 3	.....	1,300	.....	.42	9/16 x 5 1/2	2.33	67.49	67.49	67.49			
35	55.00	452	325	17	.....	1.89	3/8 x 2 3/4	.....	1,300	.....	.27	9/16 x 4 1/2	2.05	59.21	59.21	59.21			
35	55.00	451	325	17	.....	1.44	3/8 x 2 3/4	.....	1,300	.....	.27	9/16 x 4 1/2	2.05	58.76	58.76	58.76			
30	47.14	454	325	17	.....	1.64	3/8 x 2 1/2	.....	1,300	.....	.25	1 1/2 x 4 1/2	1.82	50.85	50.85	50.85			
30	47.14	453	325	17	.....	1.26	3/8 x 2 1/2	.....	1,300	.....	.25	1 1/2 x 4 1/2	1.82	50.47	50.47	50.47			
25	39.29	455	325	17	.....	.90	3/8 x 2 1/2	.....	1,300	.....	.24	1 1/2 x 4 1/2	1.56	41.99	41.99	41.99			
20	31.43	456	325	16	.....	.73	3/8 x 2 1/2	.....	1,300	.....	.13	3/8 x 4 1/2	1.38	33.67	33.67	33.67			
16	25.14	457	325	16	.....	.66	3/8 x 2 1/2	.....	1,300	.....	.12	3/8 x 3 1/2	.78	26.71	26.71	26.71			
12	18.86	458	325	14	.....	.46	3/8 x 1 1/2	.....	1,300	.....	.11	3/8 x 2 1/2	.57	20.01	20.01	20.01			

No excess allowed in the number of Bolts or Spikes.

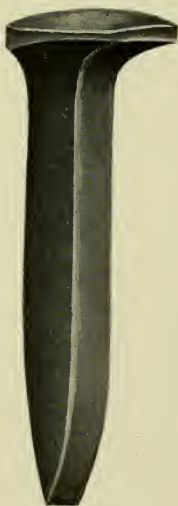
No allowance for Nut-Locks in Length of Bolts.

## SPIKES

The standard Spike used in America is the one illustrated below. In some foreign countries such as Russia, for instance, they also use a so-called Reinforced Spike and another one called a Dog Ear Spike, because of its head resembling that of a dog. Either one can be supplied by our mills.

There is also a great variety of Screw Spikes used in some foreign railroads. These Screw Spikes all require special drawings and specifications and have to be made to order. Therefore, when sending specifications for any of these, it is necessary to give us complete details.

When ordering Spikes it is necessary to mention the weight of the rail for which they are to be used, because the size of the Spike is determined by the size of the rail.



Standard American Spike



Screw Spike

# EXTRAS

## STANDARD RAILROAD TRACK SPIKES

Base size and quantity, and quantity differential as given above for steel spikes.

### EXTRA AS FOLLOWS:

Size	Per 100 Lb.	Size	Per 100 Lb.
$\frac{5}{8}$ x 6 $\frac{1}{2}$ in. ....	Base	$\frac{7}{16}$ x 4 $\frac{1}{2}$ in. ....	\$.25
6 in. ....	Base	4 in. ....	.25
5 $\frac{1}{2}$ in. ....	Base	3 $\frac{1}{2}$ in. ....	.25
$\frac{9}{16}$ x 6 in. ....	Base	$\frac{3}{8}$ x 4 $\frac{1}{2}$ in. ....	.40
5 $\frac{1}{2}$ in. ....	Base	4 in. ....	.40
5 in. ....	Base	3 $\frac{1}{2}$ in. ....	.40
4 $\frac{1}{2}$ in. ....	Base	3 in. ....	.40
$\frac{1}{2}$ x 5 in. ....	\$.15	2 $\frac{1}{2}$ in. ....	.65
4 $\frac{1}{2}$ in. ....	.15	$\frac{5}{16}$ x 3 $\frac{1}{2}$ in. ....	.95
4 in. ....	.15	3 in. ....	.95
3 $\frac{1}{2}$ in. ....	.15	2 $\frac{1}{2}$ in. ....	.95
3 in. ....	.15	2 in. ....	1.30
		Reverse Point. ....	.25

### BOAT SPIKES

Subject to the following list of extras:

$\frac{3}{8}$ in. square, 12 to 24	in. long. ....	Base
$\frac{3}{4}$ in. square, 12 to 24	in. long. ....	\$0.15 extra
$\frac{5}{8}$ in. square, 8 to 16	in. long. ....	.15 extra
$\frac{1}{2}$ in. square, 6 to 16	in. long. ....	.15 extra
$\frac{7}{16}$ in. square, 6 to 12	in. long. ....	.20 extra
$\frac{3}{8}$ in. square, 4 to 12	in. long. ....	.30 extra
$\frac{5}{16}$ in. square, 4 to 8	in. long. ....	.45 extra
$\frac{1}{4}$ in. square, 4 to 8	in. long. ....	.75 extra
$\frac{1}{4}$ in. square, 3 to 3 $\frac{1}{2}$	in. long. ....	1.00 extra

$\frac{3}{8}$  and  $\frac{5}{16}$  shorter than 4 in., 25c. per 100 lb. extra.

## PIPE AND TUBING

This particular subject does not require much discussion and elucidation, because most buyers of pipe and tubing know definitely for what purpose they are buying the material. The mere statement as for what the pipe is going to be used will indicate exactly upon what material to quote.

The following are the most common kinds of pipe and tubing manufactured for the varied specific purposes.

*Cast Iron Pipe*, used for water conduits, which comes in four specific grades,—Light, medium, heavy, and extra heavy, or Grade A, Grade B, Grade C, and Grade D.

Grade A—with a hundred foot head, tested to 43 lbs. hydraulic pressure.

Grade B—with a two hundred foot head, tested to 86 lbs., hydraulic pressure.

Grade C—with a three hundred foot head, tested to 130 lbs., hydraulic pressure.

Grade D—with a four hundred foot head, tested to 173 lbs., hydraulic pressure.

When specifying cast iron water pipes, give inside diameter in inches, thickness of the wall, and length per piece.

*Wrought Iron or Steel Welded Pipe*, for steam, gas or water conduits. This tubing is made from  $\frac{1}{8}$ " to 1" "Butt Welded," tested to 300 lbs., hydraulic pressure, and from  $1\frac{1}{4}$ " up "Lap Welded," tested to 500 lbs., hydraulic pressure.

*Lap Welded Charcoal Iron Boiler Tubing*, made for use in boilers, and manufactured in sizes from 1" up to and including 6" outside diameter.

*Seamless Steel Tubing*, which is the highest grade of tubing made, is manufactured in practically all standard sizes. It is used for a variety of purposes where a high grade tube, able to withstand great pressure and stress, is needed. When specifying Seamless Steel Tubing, it is necessary to give outside diameter in inches, and thickness of the wall.

The most essential data required besides the size, is the kind of thread wanted, as there are two principal kinds of thread, each with its own individual list price: The STANDARD AMERICAN THREAD, and the ENGLISH or WHITWORTH THREAD.

While the number of American pipe mills equipped to make English Thread Pipe is proportionally small, yet their number and capacity are sufficient to cope with the demand.

Another item of importance is whether or not accessories, such as joints, elbows, etc., etc., are wanted with the pipe, and, if so, just what accessories are to be figured upon.

The price on pipe is fixed by what is known as the "Pipe List," and "Seamless Tubing List," and is fixed at so much per foot, less whatever discount is offered; this discount fluctuating frequently in proportion with the rise and fall of the cost of raw material. Prices on American Thread Pipe are quoted on the American List, less discount, and on English Thread is, of course, subject to the English list.

There is another item of importance to mention in specifications calling for pipe and tubing, namely, the finish, whether Black Pipe, Galvanized Pipe, Brass Lined Seamless Tubing, etc.

In cable quotations, for the sake of saving cable expenses, usually only the discount is mentioned. This is done on the supposition that the buyers have our handbook.

## WROUGHT IRON AND STEEL PIPE

### STANDARD AMERICAN THREADS FOR STEAM, GAS AND WATER BLACK AND GALVANIZED

Nominal Size, Inside Diameter, Inches	List Price per Foot	Thickness Inches	Nominal Weight per Foot Pounds	Number of Threads per Inch of Screw
$\frac{1}{8}$	\$0.05 $\frac{1}{2}$	.068	.245	27
$\frac{1}{4}$	.06	.088	.425	18
$\frac{3}{8}$	.06	.091	.568	18
$\frac{1}{2}$	.08 $\frac{1}{2}$	.109	.852	14
$\frac{3}{4}$	.11 $\frac{1}{2}$	.113	1.134	14
1	.17	.133	1.684	11 $\frac{1}{2}$
1 $\frac{1}{4}$	.23	.140	2.281	11 $\frac{1}{2}$
1 $\frac{1}{2}$	.27 $\frac{1}{2}$	.145	2.731	11 $\frac{1}{2}$
2	.37	.154	3.678	11 $\frac{1}{2}$
2 $\frac{1}{2}$	.58 $\frac{1}{2}$	.203	5.819	8
3	.76 $\frac{1}{2}$	.216	7.616	8
3 $\frac{1}{2}$	.92	.226	9.202	8
4	1.09	.237	10.889	8
4 $\frac{1}{2}$	1.27	.247	12.642	8
5	1.48	.258	14.810	8
6	1.92	.280	19.185	8
7	2.38	.301	23.769	8
8	2.50	.277	25.000	8
8	2.88	.322	28.809	8
9	3.45	.342	34.188	8
10	3.20	.279	32.000	8
10	3.50	.307	35.000	8
10	4.12	.365	41.132	8
12	4.50	.330	45.000	8
12	5.07	.375	50.706	8
13	5.60	.375	55.824	8
14	6.10	.375	60.375	8
15	6.50	.375	64.500	8

Unless otherwise ordered, Black Pipe, in random lengths, with threads and couplings will be shipped.

For selected or cut lengths an extra charge will be made above random lengths.

For pipe smoothed on the inside, known as "plugged and reamed," an extra charge will be made above regular pipe.

For Galvanized or Tar Coated pipe an extra charge will be made above Black.

When ordering sizes 8 inch to 12 inch, state weight of pipe wanted.

## X STRONG AND XX STRONG PIPE

### BLACK AND GALVANIZED Standard American Threads

	Size	List Price per Foot	Actual Outside Diameter Inches	Nominal Inside Diameter Inches	Thickness	Nominal Weight per Foot Pounds
X Strong	$\frac{1}{4}$	\$0.07 $\frac{1}{2}$	.540	.302	.119	.535
	$\frac{3}{8}$	.07 $\frac{1}{2}$	.675	.423	.126	.738
	$\frac{1}{2}$	.11	.840	.546	.147	1.087
	$\frac{3}{4}$	.15	1.050	.742	.154	1.473
	1	.22	1.315	.957	.179	2.171
	1 $\frac{1}{4}$	.30	1.660	1.278	.191	2.996
	1 $\frac{1}{2}$	.36 $\frac{1}{2}$	1.900	1.500	.200	3.631
	2	.50 $\frac{1}{2}$	2.375	1.939	.218	5.022
	2 $\frac{1}{2}$	.77	2.875	2.323	.276	7.661
	3	1.03	3.500	2.900	.300	10.252
	3 $\frac{1}{2}$	1.25	4.000	3.364	.318	12.505
	4	1.50	4.500	3.826	.337	14.983
	4 $\frac{1}{2}$	1.80	5.000	4.290	.355	17.611
	5	2.08	5.563	4.813	.375	20.778
	6	2.86	6.625	5.761	.432	28.573
	7	3.81	7.625	6.625	.500	38.048
	8	4.34	8.625	7.625	.500	43.388
	9	4.90	9.625	8.625	.500	48.728
	10	5.48	10.750	9.750	.500	54.735
	12	6.55	12.750	11.750	.500	65.415
XX Strong	$\frac{1}{2}$	\$0.32	.840	.252	.294	.714
	$\frac{3}{4}$	.35	1.050	.434	.308	2.440
	1	.37	1.315	.599	.358	3.659
	1 $\frac{1}{4}$	.52 $\frac{1}{2}$	1.660	.896	.382	5.214
	1 $\frac{1}{2}$	.65	1.900	1.100	.400	6.408
	2	.91	2.375	1.503	.436	9.029
	2 $\frac{1}{2}$	1.37	2.875	1.771	.552	13.695
	3	1.86	3.500	2.300	.600	18.583
	3 $\frac{1}{2}$	2.30	4.000	2.728	.636	22.850
	4	2.76	4.500	3.152	.674	27.541
	4 $\frac{1}{2}$	3.26	5.000	3.580	.710	32.530
	5	3.86	5.563	4.063	.750	38.552
	6	5.32	6.625	4.897	.864	53.160

Extra Strong and Double Extra Strong Pipe will be shipped in random lengths and with plain ends unless otherwise ordered.

Random lengths Extra Strong and Double Extra Strong Pipe is considered to be 12 feet to 20 feet.

If fitted with threads and couplings an extra charge will be made above regular. When Extra Strong and Double Extra Strong Pipe is ordered with threads and couplings our regular Line Pipe Couplings will be furnished, unless otherwise specified.

For cut lengths an extra charge will be made above random lengths. For Galvanized or Tar Coated Pipe an extra charge will be made above Black.

# ENGLISH STANDARD THREADS—STEAM TUBES

## PAINTED RED AND GALVANIZED

All Weights and Dimensions are Nominal

Nominal Inside Diameter Inches	Weight		Per Meter Kilos	Outside Diameter		No. Threads Per Inch	List Price Per Foot
	m/m	Per Foot Pounds		Inches	m/m		
3/8	3.17	.33	.491	.406	10.31	28	0/3 1/2
1/4	6.35	.44	.655	.531	13.49	19	0/3 1/2
3/8	9.52	.67	.997	.687	17.45	19	0/4
1/2	12.70	.94	1.399	.844	21.44	14	0/5
3/4	19.05	1.48	2.202	1.062	26.97	14	0/6 1/2
1	25.40	2.03	3.021	1.344	34.14	11	0/9
1 1/4	31.75	2.92	4.345	1.687	42.85	11	1/1
1 1/2	38.10	3.56	5.298	1.906	48.41	11	1/4
1 3/4	44.45	4.26	6.340	2.156	54.76	11	1/8
2 1/4	57.15	5.74	8.542	2.375	60.32	11	1/10
2	50.80	4.83	7.188	2.625	66.68	11	2/6
2 1/2	63.50	6.29	9.360	3	76.20	11	2/9
2 3/4	69.85	6.85	10.194	3.25	82.55	11	3/0
3	76.20	7.40	11.012	3.5	88.90	11	3/3
3 1/2	88.90	8.50	12.650	4	101.60	11	4/3
4	101.60	9.60	14.287	4.5	114.30	11	4/9
4 1/2	114.30	12.80	19.049	5	127.00	11	5/6
5	127.00	14.20	21.132	5.5	139.70	11	6/0
6	152.40	17.04	25.359	6.5	165.10	11	7/6

# ENGLISH STANDARD THREADS—GAS TUBES

## BLACK AND GALVANIZED

All Weights and Dimensions are Nominal

Nominal Inside Diameter Inches	Weight		Per Meter Kilos	Outside Diameter		No. Threads Per Inch	List Price Per Foot
	m/m	Per Foot Pounds		Inches	m/m		
3/8	3.17	.240	.357	.406	10.31	28	0/3 1/2
1/4	6.35	.421	.627	.531	13.49	19	0/3 1/2
5/8	9.52	.568	.845	.687	17.45	19	0/4
1/2	12.70	.865	1.287	.844	21.44	14	0/5
3/4	19.05	1.156	1.720	1.062	26.97	14	0/6 1/2
1	25.40	1.726	2.569	1.344	34.14	11	0/9
1 1/4	31.75	2.325	3.460	1.687	42.85	11	1/1
1 1/2	38.10	2.768	4.119	1.906	48.41	11	1/4
1 3/4	44.45	3.380	5.030	2.156	54.76	11	1/8
2	50.80	3.704	5.512	2.375	60.32	11	1/10
2 1/4	57.15	4.80	7.143	2.625	66.68	11	2/6
2 1/2	63.50	5.26	7.828	3	76.20	11	2/9
2 3/4	69.85	5.73	8.527	3.25	82.55	11	3/0
3	76.20	6.22	9.256	3.5	88.90	11	3/3
3 1/2	88.90	7.34	10.923	4	101.60	11	4/3
4	101.60	8.33	12.396	4.5	114.30	11	4/9
4 1/2	114.30	9.77	14.539	5	127.00	11	5/6
5	127.00	10.50	15.626	5.5	139.70	11	6/0
6	152.40	12.50	18.602	6.5	165.10	11	7/6



## TOOL STEEL

The art of making tool steel goes back to the very cradle of civilization. The science of it is but a few decades old. Long before man needed steel rails and steel bridges, he was using steel arrows and steel spears.

Although centuries ago the making of tools, particularly arms, had become quite an art, it did not enter into the definite realms of an exact science until the latter part of the last century.

The sword makers of Damascus and Toledo turned out blades that are unexcelled even today. These artisans knew that the desired flexibility and hardness of their blades were obtained by slowly heating iron bars in charcoal fires, carefully drawing them out, bending them back, tempering them in beef tallow to refine the grain and repeating the process dozens of times. They had no idea of the chemical reactions and structural changes that were responsible for the results.

The Sheffield pioneers who conceived the idea of melting pieces of iron together in a closed pot, or crucible, realized very soon that Swedish iron produced better results than the ordinary grade. This was for a long time ascribed solely to the greater purity of Swedish iron. Today we know that the traces of vanadium and other alloys contained in this iron are playing quite a part of their own in improving the quality of the steel.

Up to the latter part of last century, tool steel making was still supposed to be a sort of hereditary art descending from father to son. Its supposed secret was most jealously guarded by European Mills. As soon as America entered the field to any considerable extent, the mystery made room for the testing laboratory and the pyrometer. Heat treatment and the use of alloys were given scientific study. Their effect upon steel under certain conditions, together with the chemical and physical changes they produced in steel, were indexed and tabulated. The result is that we are today nearer to the production of ideal tool steel than we have ever been before, although the goal has not quite yet been reached.

Although for almost every other purpose hardness may, to a certain extent, be sacrificed to obtain greater toughness, and vice versa, tool steel must possess both. A chisel, for instance, must not only be sufficiently tough to resist the blows of the hammer, it must also be harder than the beam or rail it is to cut. A high speed drill not only must be harder than the armor plate it is to work upon, but it must also have enough toughness to resist the torsional strain which tends to break it. In addition, both must



possess the quality of being forged, tempered and ground by an ordinary tool dresser and without the services of a high class expert who is not always available.

For commercial purposes tool steel can be roughly classified under two headings:

*High Speed Steel* (air or oil hardening)

*Carbon Steel* (water tempering)

## HIGH SPEED STEEL

*High Speed Steel* is a modern invention to keep pace with the ever-increasing speed of the modern machine. It is used so far only for tools that work with comparatively little shock, but require a very hard, long lasting cutting edge, an edge that will do its work even when considerably heated up, as is the case of a lathe working at a speed of several hundred feet a minute turning off burning hot chips.

These qualities are obtained by the admixture to the iron of other metals, such as: tungsten, chromium, vanadium, iridium, molybdenum, cobalt, etc. The use of these alloys while increasing the lasting power and capacity for great speed of tool steel, makes it harder to work than ordinary carbon steel. Furthermore, the greater or smaller proportion of one or the other of the alloys contained in high speed steel, although possibly producing the same ultimate result as to the quality of the finished tool, may materially change the method of working the steel. Therefore, when using any kind of high speed steel, it is wise always first to ascertain the method of tempering best suited for it.

## CARBON TOOL STEEL

*Carbon Tool Steel* is used for such tools as: crow bars, wedges, picks, coal cutters, sets, blacksmiths' tools, chisels, cutlery, mining drills, stamping dies, punches, threading dies, files, drills, razors, milling cutters, and lathe tools, although for many of the last-named purposes, it is being more and more replaced by high speed steel. Carbon steel is generally hardened in water. It gets its name from the fact that carbon is the agent which gives it its hardness. However, even for this class of steel various alloys are now being used to obtain certain desirable properties, such as greater toughness, increased resistance to vibration, etc.

Because of the great variety of uses to which carbon steel is put, it is practically impossible to manufacture one brand that would be equally satisfactory for all of them. For this reason, it is usually made in from five to ten different degrees of hardness, each best suited for the work for which it is destined. Even a layman may appreciate that a wedge tool for splitting trees

which has nothing hard to cut, but gets a lot of pounding, requires properties entirely different from those of a threading die, cutting hard cast iron pipe, and having no shocks of any great violence to absorb.

*Quality:* The quality of tool steel is determined solely by its purity (freedom from noxious elements) and has absolutely nothing to do with its hardness. In carbon steel hardness is obtained by the addition of more or less carbon to the steel, and this is but an insignificant item in its cost of manufacture. The degree of hardness desirable in tool steel should be left for our expert to determine, because, on account of his experience, he is usually best qualified to decide the question.

We, therefore, very urgently recommend that when ordering tool steel you give us, besides the profiles, dimensions, lengths and number of bars wanted, *the exact use that is to be made of the tools*; state also whether carbon or high speed steel is wanted. You may then trust our experts to see to it that you will get the degree of hardness and toughness best calculated to meet your requirements.

## EXTRAS

### HIGH SPEED TOOL STEEL

Subject to established customs of trade, and with following extras:

All dimensions inclusive. Intermediate sizes take the next higher extra.

Base sizes—Round, square and octagon,  $\frac{5}{8}$  in. to 2 in. inclusive; flat,  $\frac{5}{8}$  in. to 2 in. thick by  $\frac{5}{8}$  in. to 2 in. wide.

### EXTRA SIZES

#### Round, Square and Octagon

Inches	Extra Per Lb Cents	Inches	Extra Per Lb Cents
$\frac{9}{16}$ to $\frac{1}{2}$ .....	2.0	$3\frac{5}{8}$ to 4.....	3.5
$\frac{7}{16}$ to $\frac{3}{8}$ .....	3.5	$4\frac{1}{8}$ to $4\frac{1}{2}$ .....	4.0
$\frac{5}{16}$ to $\frac{11}{32}$ .....	6.0	$4\frac{5}{8}$ to 5.....	4.5
$\frac{1}{4}$ to $\frac{9}{32}$ .....	8.5	$5\frac{1}{8}$ to $5\frac{1}{2}$ .....	5.0
$2\frac{1}{8}$ to $2\frac{1}{2}$ .....	2.0	$5\frac{5}{8}$ to 6.....	5.5
$2\frac{5}{8}$ to 3.....	2.5	$6\frac{1}{8}$ to $6\frac{1}{2}$ .....	6.0
$3\frac{1}{8}$ to $3\frac{1}{2}$ .....	3.0	$6\frac{5}{8}$ to 7.....	6.5

# EXTRA SIZES

## Flat

Inches	Extra Per Lb. Cents	Inches	Extra Per Lb. Cents
$\frac{1}{8}$ x $\frac{3}{16}$ .....	40.0	$\frac{3}{8}$ x $1\frac{5}{8}$ to 5.....	2.5
$\frac{1}{8}$ x $\frac{3}{4}$ .....	30.0	$\frac{7}{16}$ x $\frac{1}{2}$ to 1.....	3.0
$\frac{1}{8}$ x $\frac{5}{16}$ .....	20.0	$\frac{7}{16}$ x $1\frac{1}{8}$ to $5\frac{1}{2}$ .....	2.5
$\frac{1}{8}$ x $\frac{3}{8}$ to 2.....	14.0	$\frac{1}{2}$ x $\frac{5}{8}$ to 1.....	2.5
$\frac{3}{16}$ x $\frac{1}{4}$ to 3.....	14.0	$\frac{1}{2}$ x $1\frac{1}{8}$ to 6.....	2.0
$\frac{1}{4}$ x $\frac{5}{16}$ to $\frac{1}{2}$ .....	8.0	$\frac{9}{16}$ x $\frac{5}{8}$ to 1.....	2.5
$\frac{1}{4}$ x $\frac{5}{8}$ to 1.....	5.0	$\frac{9}{16}$ x $1\frac{1}{8}$ to 6.....	2.0
$\frac{1}{4}$ x $1\frac{1}{8}$ to 4.....	3.0	$\frac{5}{8}$ to 2 x $\frac{5}{8}$ to 2.....	0.0
$\frac{5}{16}$ x $\frac{3}{8}$ to $\frac{5}{8}$ .....	5.0	$\frac{5}{8}$ to 2 x $2\frac{1}{8}$ to 4.....	2.0
$\frac{5}{16}$ x $\frac{3}{4}$ to 1.....	3.5	$\frac{5}{8}$ to 2 x $4\frac{1}{8}$ to 7.....	4.0
$\frac{5}{16}$ x $1\frac{1}{8}$ to $4\frac{1}{2}$ .....	3.0	$2\frac{1}{8}$ to 3 x $2\frac{1}{8}$ to 4.....	2.0
$\frac{3}{8}$ x $\frac{7}{16}$ to $\frac{3}{4}$ .....	3.0	$2\frac{1}{8}$ to 3 x $4\frac{1}{8}$ to 7.....	4.0
$\frac{3}{8}$ x $\frac{7}{8}$ to $1\frac{1}{2}$ .....	3.0		

Intermediate sizes take the next higher extra.

Annealing, 2c. per lb. extra.

Bevels, same classification as flats, plus 10c. per lb. for shape.

# CARBON TOOL STEEL

Subject to established customs of trade, and with following extras:

All Dimensions inclusive. Intermediate sizes take the next higher extra.

Base sizes—Round, square and octagon,  $\frac{5}{8}$  in. to 2 in. inclusive. Flat, 5 in. to 2 in. thick by  $\frac{9}{16}$  in. to 2 in. wide.

# EXTRA SIZES

## Round, Square and Octagon

Inches	Extra Per Lb. Cents	Inches	Extra Per Lb. Cents
$2\frac{1}{8}$ to 3.....	1.0	$\frac{7}{16}$ to $\frac{3}{8}$ .....	1.0
$3\frac{1}{8}$ to 4.....	1.5	$\frac{5}{16}$ to $1\frac{1}{32}$ .....	2.0
$4\frac{1}{8}$ to 5.....	2.0	$\frac{1}{4}$ to $\frac{9}{32}$ .....	3.0
$5\frac{1}{8}$ to 6.....	2.5	$\frac{3}{16}$ .....	5.0
$6\frac{1}{8}$ to 7.....	3.0	$\frac{5}{32}$ .....	10.0
$7\frac{1}{8}$ to 8.....	3.5	$\frac{1}{8}$ .....	18.0
$\frac{9}{16}$ to $\frac{1}{2}$ .....	0.5		

## EXTRA SIZES

Flat

Inches	Extra Per Lb. Cents	Inches	Extra Per Lb. Cents
$\frac{1}{8}$ x $\frac{3}{16}$ .....	20.0	$\frac{5}{16}$ x $\frac{3}{8}$ to $\frac{5}{8}$ .....	1.5
$\frac{1}{8}$ x $\frac{1}{4}$ .....	15.0	$\frac{5}{16}$ x $\frac{11}{16}$ to 8.....	1.0
$\frac{1}{8}$ x $\frac{5}{16}$ .....	8.0	$\frac{3}{8}$ x $\frac{7}{16}$ to 8.....	1.0
$\frac{1}{8}$ x $\frac{3}{8}$ .....	4.0	$\frac{7}{16}$ x $\frac{1}{2}$ to 8.....	1.0
$\frac{1}{8}$ x $\frac{7}{16}$ to $\frac{1}{2}$ .....	3.0	$\frac{1}{2}$ x $\frac{9}{16}$ to 8.....	1.0
$\frac{1}{8}$ x $\frac{9}{16}$ to 7.....	2.0	$\frac{9}{16}$ x $2\frac{1}{8}$ to 8.....	1.0
$\frac{1}{8}$ x $7\frac{1}{8}$ to 8.....	3.0	$\frac{9}{16}$ to 2 x $\frac{5}{8}$ to 2.....	0.0
$\frac{3}{16}$ x $\frac{1}{4}$ .....	5.0	$\frac{5}{8}$ to 2 x $2\frac{1}{8}$ to 7.....	1.0
$\frac{3}{16}$ x $\frac{5}{16}$ .....	4.0	$\frac{5}{8}$ to $1\frac{3}{4}$ x $7\frac{1}{8}$ to 8.....	1.0
$\frac{3}{16}$ x $\frac{3}{8}$ .....	3.0	$1\frac{7}{8}$ to 2 x $7\frac{1}{8}$ to 8.....	1.5
$\frac{3}{16}$ x $\frac{7}{16}$ to $\frac{5}{8}$ .....	2.0	$2\frac{1}{8}$ to 3 x $2\frac{1}{8}$ to 5.....	1.0
$\frac{3}{16}$ x $\frac{11}{16}$ to 2.....	1.5	$2\frac{1}{8}$ to 3 x $5\frac{1}{8}$ to 8.....	1.5
$\frac{3}{16}$ x $2\frac{1}{8}$ to 7.....	1.0	$3\frac{1}{8}$ to 4 x $3\frac{1}{8}$ to 6.....	1.5
$\frac{3}{16}$ x $7\frac{1}{8}$ to 8.....	2.0	$3\frac{1}{8}$ to 4 x $6\frac{1}{8}$ to 8.....	2.0
$\frac{1}{4}$ x $\frac{5}{16}$ to $\frac{3}{8}$ .....	2.0	$4\frac{1}{8}$ to 5 x $4\frac{1}{8}$ to 7.....	2.0
$\frac{1}{4}$ x $\frac{7}{16}$ to $\frac{5}{8}$ .....	1.5	$4\frac{1}{8}$ to 5 x $7\frac{1}{8}$ to 8.....	2.5
$\frac{1}{4}$ x $\frac{11}{16}$ to 2.....	1.5	$5\frac{1}{8}$ to 6 x $5\frac{1}{8}$ to 8.....	2.5
$\frac{1}{4}$ x $2\frac{1}{8}$ to 7.....	1.0	$6\frac{1}{8}$ to 7 x $6\frac{1}{8}$ to 7.....	3.0
$\frac{1}{4}$ x $7\frac{1}{8}$ to 8.....	2.0	$6\frac{1}{8}$ to 8 x $7\frac{1}{8}$ to 8.....	3.5

Intermediate sizes take the next higher extra.

Annealed Steel.....1c. per lb. extra.

## CUTTING TO SPECIFIED SINGLE AND MULTIPLE LENGTHS

	Per Lb. Cents
24 inches or over.....	0.5
18 to 24 inches.....	1.0
12 to 18 inches.....	1.5
6 to 12 inches.....	2.0

Less than 6 inches, special price. Over 18 feet, special price.

## PIG IRON

Utmost care should be taken with regard to Pig Iron inquiries as there are different grades, all of which are quoted in different prices, the difference at times being as much as from \$20.00 to \$30.00 per gross ton. Generally speaking, the following are the most familiar grades of Pig Iron:

**BASIC PIG IRON:** (Used for making basic open hearth steel)

**STANDARD BESSEMER PIG IRON:** (For making Bessemer Steel)

**HEMATITE PIG IRON**

**FOUNDRY PIG IRON:**

No. 1 Foundry Pig Iron

No. 1x Foundry Pig Iron

No. 2 Foundry Pig Iron

No. 2x Foundry Pig Iron

No. 3 Foundry Pig Iron

No. 4 Foundry Pig Iron

All Pig Iron inquiries should particularly mention the exact chemical analysis of the material wanted.

**STANDARD BESSEMER PIG IRON** for making Bessemer Steel:

Silicon: 1.00 to 2.00%

Sulphur: Not over .05%

Phosphorus: Not over .10%

**BASIC PIG IRON** for Basic Open Hearth Steel:

Silicon: Under 1.00%

Sulphur: Under .05%

Phosphorus: Under .50%

(Some Southern Pig Iron may show as much as 1.00% of Phosphorus)

**HEMATITE PIG IRON** for use in making acid Bessemer Steel:

Silicon: About 2.50%

Sulphur: About .035%

Phosphorus: About .035% to .06%

**LOW PHOSPHORUS PIG IRON** for low Phosphorus Steel:

(This is the highest price Pig Iron sold)

Silicon: 1 to 2.00%

Sulphur: Not over .035%

Phosphorus: Not over .035%

### **NO. 1 FOUNDRY PIG:**

Silicon:  $2\frac{1}{2}$  to  $3\frac{1}{2}$ %. Sulphur: Not over .004. Phosphorus: 1.00%.

### **NO. 2 FOUNDRY PIG:**

Silicon:  $1\frac{1}{2}$  to  $3\frac{1}{2}$ %. Sulphur: .005%. Phosphorus: 1.25%.

# TABLES FOR COMPUTING WEIGHT OF STEEL

Weight in Lbs. of a Lineal Foot of Round, Octagon and Square Steel

Size in Inches	Round	Octagon	Square	Size in Inches	Round	Octagon	Square
$\frac{1}{16}$	.010	.011	.013	$2\frac{1}{2}$	16.79	17.71	21.37
$\frac{1}{8}$	.042	.044	.053	$2\frac{5}{8}$	18.51	19.52	23.56
$\frac{3}{16}$	.094	.099	.120	$2\frac{3}{4}$	20.31	21.42	25.86
$\frac{1}{4}$	.168	.177	.214	$2\frac{7}{8}$	22.30	23.41	28.27
$\frac{5}{16}$	.262	.277	.334	3	24.17	25.50	30.78
$\frac{5}{8}$	.378	.398	.491	$3\frac{1}{8}$	26.23	27.66	33.40
$\frac{7}{16}$	.514	.542	.655	$3\frac{1}{4}$	28.37	29.92	36.12
$\frac{1}{2}$	.671	.708	.855	$3\frac{5}{8}$	30.59	32.27	38.95
$\frac{9}{16}$	.850	.896	1.082	$3\frac{1}{2}$	32.90	34.70	41.89
$\frac{5}{8}$	1.049	1.107	1.336	$3\frac{5}{8}$	35.29	37.23	44.94
$\frac{11}{16}$	1.270	1.339	1.616	$3\frac{3}{4}$	37.77	39.84	48.09
$\frac{3}{4}$	1.511	1.594	1.924	$3\frac{7}{8}$	40.33	42.54	51.35
$\frac{13}{16}$	1.773	1.870	2.258	4	42.97	45.33	54.72
$\frac{7}{8}$	2.056	2.169	2.618	$4\frac{1}{4}$	48.51	51.17	61.77
$\frac{15}{16}$	2.361	2.490	3.006	$4\frac{1}{2}$	54.39	57.37	69.25
1	2.686	2.833	3.420	$4\frac{3}{4}$	60.60	63.92	77.16
$1\frac{1}{8}$	3.399	3.585	4.328	5	67.15	70.83	85.50
$1\frac{1}{4}$	4.197	4.427	5.344	$5\frac{1}{4}$	74.03	78.08	94.26
$1\frac{3}{8}$	5.078	5.356	6.466	$5\frac{1}{2}$	81.25	85.70	103.45
$1\frac{1}{2}$	6.044	6.374	7.695	$5\frac{3}{4}$	88.80	93.67	113.07
$1\frac{5}{8}$	7.093	7.481	9.031	6	96.69	101.99	123.12
$1\frac{3}{4}$	8.226	8.674	10.474	7	131.61	138.82	167.58
$1\frac{7}{8}$	9.443	9.960	12.023	8	171.90	181.32	218.88
2	10.744	11.332	13.680	9	217.57	229.48	277.02
$2\frac{1}{8}$	12.129	12.793	15.443	10	268.60	283.31	342.12
$2\frac{1}{4}$	13.598	14.343	17.314	11	325.01	342.80	413.82
$2\frac{3}{8}$	15.151	15.981	19.291	12	386.79	407.97	492.48

## TABLES FOR COMPUTING WEIGHT OF STEEL

## Weight in Lbs. of a Lineal Foot of Flat Steel

Width Inch	Thickness						
	$\frac{3}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
$\frac{1}{2}$	.214	.428	.641	.....	.....	.....	.....
$\frac{5}{8}$	.267	.534	.802	1.069	.....	.....	.....
$\frac{3}{4}$	.321	.641	.962	1.283	1.603	.....	.....
$\frac{7}{8}$	.374	.748	1.122	1.496	1.870	2.244	.....
1	.427	.855	1.283	1.710	2.138	2.565	.....
$1\frac{1}{8}$	.481	.962	1.443	1.924	2.405	2.886	3.848
$1\frac{1}{4}$	.534	1.069	1.603	2.138	2.672	3.206	4.275
$1\frac{3}{8}$	.588	1.176	1.763	2.351	2.939	3.527	4.703
$1\frac{1}{2}$	.641	1.283	1.924	2.565	3.206	3.848	5.130
$1\frac{5}{8}$	.695	1.389	2.084	2.779	3.473	4.168	5.558
$1\frac{3}{4}$	.748	1.496	2.244	2.993	3.741	4.489	5.985
$1\frac{7}{8}$	.802	1.603	2.405	3.206	4.008	4.809	6.413
2	.855	1.710	2.565	3.420	4.275	5.130	6.840
$2\frac{1}{8}$	.908	1.817	2.725	3.634	4.542	5.451	7.268
$2\frac{1}{4}$	.962	1.924	2.886	3.848	4.809	5.771	7.695
$2\frac{3}{8}$	1.015	2.031	3.046	4.061	5.077	6.092	8.123
$2\frac{1}{2}$	1.069	2.138	3.206	4.275	5.344	6.413	8.550
$2\frac{5}{8}$	1.122	2.244	3.367	4.489	5.611	6.733	8.978
$2\frac{3}{4}$	1.176	2.351	3.527	4.703	5.878	7.054	9.405
3	1.283	2.565	3.848	5.130	6.413	7.695	10.260
$3\frac{1}{4}$	1.389	2.779	4.168	5.558	6.947	8.336	11.115
$3\frac{1}{2}$	1.496	2.993	4.489	5.985	7.481	8.978	11.970
$3\frac{3}{4}$	1.603	3.206	4.809	6.413	8.016	9.619	12.825
4	1.710	3.420	5.130	6.840	8.550	10.260	13.680
$4\frac{1}{4}$	1.817	3.634	5.451	7.268	9.084	10.901	14.535
$4\frac{1}{2}$	1.924	3.848	5.771	7.695	9.619	11.542	15.390
$4\frac{3}{4}$	2.031	4.061	6.092	8.123	10.153	12.184	16.245
5	2.138	4.275	6.413	8.550	10.688	12.825	17.100
$5\frac{1}{4}$	2.244	4.489	6.733	8.978	11.222	13.466	17.955
$5\frac{1}{2}$	2.351	4.703	7.054	9.405	11.756	14.108	18.810
$5\frac{3}{4}$	2.458	4.916	7.374	9.833	12.291	14.749	19.665
6	2.565	5.130	7.695	10.260	12.825	15.390	20.520

# Handy Tables of Equivalents in Metric Measurements

## Conversion of Pounds into Kilograms

1 lb. = 0.454.kg.; 1 kg. = 2.205 lbs.

Avoir Lbs.	0	1	2	3	4	5	6	7	8	9
0		.454	.907	1.361	1.814	2.268	2.722	3.175	3.629	4.082
10	4.536	4.989	5.443	5.896	6.350	6.804	7.257	7.711	8.165	8.618
20	9.072	9.525	9.979	10.432	10.886	11.340	11.793	12.247	12.701	13.154
30	13.608	14.061	14.515	14.968	15.422	15.876	16.329	16.783	17.237	17.690
40	18.144	18.597	19.051	19.504	19.958	20.412	20.865	21.319	21.773	22.226
50	22.680	23.133	23.587	24.040	24.494	24.948	25.401	25.855	26.308	26.762
60	27.216	27.669	28.123	28.576	29.030	29.484	29.937	30.391	30.844	31.298
70	31.751	32.205	32.659	33.112	33.566	34.019	34.473	34.927	35.380	35.834
80	36.287	36.741	37.195	37.648	38.102	38.555	39.009	39.463	39.916	40.370
90	40.823	41.277	41.731	42.184	42.638	43.091	43.545	43.999	44.452	44.906

## KILOGRAMS TO POUNDS

1 Kilo to 99 Kilos, advancing by 1 Kilo

		10	20	30	40	50	60	70	80	90
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
0	.....	22.046	44.092	66.138	88.184	110.230	132.276	154.322	176.368	198.414
1	2.2046	24.250	46.297	68.343	90.389	112.435	134.481	156.527	178.573	200.619
2	4.4092	26.455	48.501	70.547	92.593	114.639	136.685	158.731	180.777	202.823
3	6.6138	28.660	50.706	72.752	94.798	116.844	138.890	160.936	182.982	205.028
4	8.8184	30.864	52.910	74.956	97.002	119.048	141.094	163.140	185.186	207.232
5	11.0230	33.069	55.115	77.161	99.207	121.253	143.299	165.345	187.391	209.437
6	13.2276	35.274	57.320	79.366	101.412	123.458	145.504	167.550	189.596	211.642
7	15.4322	37.478	59.524	81.570	103.616	125.662	147.708	169.754	191.800	213.846
8	17.6368	39.683	61.729	83.775	105.821	127.867	149.913	171.959	194.005	216.051
9	19.8414	41.887	63.933	85.979	108.025	130.071	152.117	174.163	196.209	218.255



Alter **one** decimal place for each division or multiple of the kilogram.

**Example** — 54 lbs. = 24.494 kilograms, = 244.94 hectograms = 24494 grams.

$$\begin{array}{rcl} 546 \text{ lbs.} & = & 540 \text{ lbs.} = 244.94 \\ 6 \text{ lbs.} & = & 2.72 \\ \hline & & 247.66 \text{ kgs.} \end{array}$$

Thumb rule for calculating pounds into kilos: Deduct 10 per cent. from the number of pounds and divide the balance by 2. This is the equivalent number of kilos.

Funk and Wagnall's "New Standard Dictionary of the English Language" defines the pound as "a **variable** unit of weight or mass." The avoirdupois pound is 0.454 kg. while the Troy and apothecary pound is equal to 0.373 kg. The meaning of the pound varies in many countries. The Spanish lb. (libra) still used to some extent in the retail trade in Spain and many of the Spanish-American countries is 0.460 kg.; the Russian lb. (funt) = 0.40 kg.; the old Italian = 0.333 kg.; the French, German, Danish pound (formerly used) is 0.500 kg.; the Portuguese and Brazilian lb. (arratel) is 0.459 kg.; the Swedish lb. = 0.425 kg. Haiti's official pound is 0.500 kg. and so on.

The only universal measure of weight, which represents everywhere the same exact amount is the kilogram = 2.205 pounds. It is unchangeable and unmistakable.

# HANDY TABLES OF EQUIVALENTS IN METRIC MEASUREMENTS—Continued

## Conversion of Inches Into Centimeters

1 inch = 2.54 cm.; 1 cm. = 0.39 inches

Ins.	0	1	2	3	4	5	6	7	8	9
0		2.54	5.08	7.62	10.16	12.70	15.24	17.78	20.32	22.86
10	25.40	27.94	30.48	33.02	35.56	38.10	40.64	43.18	45.72	48.26
20	50.80	53.34	55.88	58.42	60.96	63.50	66.04	68.58	71.22	73.66
30	76.20	78.74	81.28	83.82	86.36	88.90	91.44	93.98	96.52	99.06
40	101.60	104.14	106.68	109.22	111.76	114.30	116.84	119.38	121.92	124.46
50	127.00	129.54	132.08	134.62	137.16	139.70	142.24	144.78	147.32	149.86
60	152.40	154.94	157.48	160.02	162.56	165.10	167.64	170.18	172.72	175.26
70	177.80	180.34	182.88	185.42	187.96	190.50	193.04	195.58	198.12	200.66
80	203.20	205.74	208.28	210.82	213.36	215.90	218.44	220.98	223.52	226.06
90	228.60	231.14	233.68	236.22	238.76	241.30	243.84	246.38	248.92	251.46

**Example**— 41 inches = 104.14 cm.

410 inches = 1041.4 cm.

419 inches = 410" = 1041.4 cm.

9" = 22.86 cm.

1064.26 cm.

About 10 meters 64 cm.

1 mm. = 0.039 inch.

1 centimeter = 0.39 inch.

1 decimeter = 3.9 inches.

1 meter = 39.37 inches.

1 inch = 0.0254 meter.

1 inch = 2.54 cm.

1 inch = 25.4 mm.

If equivalents should be expressed in millimeters, advance decimal point one place to the right.

Inches are only used in countries where English or Russian is spoken, also in most British and American dependencies. In all other countries it is preferable to use the metric measurements because the inch used there formerly differs quite considerably from the English inch. Thus every Spanish Encyclopedia gives the equivalent of an inch as 23 mm., the Prussian inch is 26.15 mm., the French inch equals 25.5 mm., the Swedish inch is 33.7 mm., the Swiss inch is 33.3 mm., and so on. One French inch has 12 "lignes." No such discrepancies are possible with the centimeter. In calculating equivalents of whole inches never go further with the decimal than to whole millimeters, for instance: 10 inches = 254 mm.; in fractions of inches you may go as far as decimals of mm.—but no further—unless hundredths or thousandths of an inch are given.

## Centimeters to Inches

c/m		10	20	30	40	50	60	70	80	90
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
0		3.937	7.874	11.811	15.748	19.685	23.622	27.559	31.496	35.433
1	0.3937	4.331	8.268	12.205	16.142	20.079	24.016	27.953	31.890	35.827
2	0.7874	4.724	8.661	12.598	16.535	20.472	24.409	28.346	32.283	36.220
3	1.1811	5.118	9.055	12.992	16.929	20.866	24.803	28.740	32.677	36.614
4	1.5748	5.512	9.449	13.386	17.323	21.260	25.197	29.134	33.071	37.008
5	1.9685	5.906	9.843	13.780	17.717	21.654	25.591	29.528	33.465	37.402
6	2.3622	6.299	10.236	14.173	18.110	22.047	25.984	29.921	33.858	37.795
7	2.7559	6.693	10.630	14.567	18.504	22.441	26.378	30.315	34.252	38.189
8	3.1496	7.087	11.024	14.961	18.898	22.835	26.772	30.709	34.646	38.583
9	3.5433	7.480	11.417	15.354	19.291	23.228	27.165	31.102	35.039	38.976

# HANDY TABLES OF EQUIVALENTS IN METRIC MEASUREMENTS—Continued

## Conversion of Feet Into Meters

1 foot = 0.305 meters; 1 meter = 3.281 feet

Feet	0	1	2	3	4	5	6	7	8	9
0		.305	.610	.914	1.219	1.524	1.829	2.134	2.438	2.743
10	3.048	3.353	3.658	3.962	4.267	4.572	4.877	5.182	5.486	5.791
20	6.096	6.401	6.706	7.010	7.315	7.620	7.925	8.230	8.534	8.839
30	9.144	9.449	9.754	10.058	10.363	10.668	10.973	11.278	11.582	11.887
40	12.192	12.497	12.802	13.106	13.411	13.716	14.021	14.326	14.630	14.935
50	15.240	15.545	15.850	16.154	16.459	16.764	17.069	17.374	17.678	17.983
60	18.288	18.593	18.898	19.202	19.507	19.812	20.117	20.422	20.726	21.031
70	21.336	21.641	21.946	22.250	22.555	22.860	23.165	23.470	23.774	24.079
80	24.384	24.689	24.994	25.298	25.603	25.908	26.213	26.518	26.822	27.127
90	27.432	27.737	28.042	28.346	28.651	28.956	29.261	29.566	29.870	30.175

**Examples**—44 feet = 13.411 meters = 134.11 decimeters = 1341.1 centimeters = 13411. millimeters.

440 feet = 134.11 meters;

446 feet = 440 f. = 134.11 m.

6 f. = 1.83 m.

446 f. = 135.94 meters

46 feet 11 inches =

The Conversion Table of inches gives for:

11 in. = 27.94 cm. = 0.279 m.

46 feet = 14.021 m.

46 ft. 11 in. = 14.300 m.

The foot measure in foreign countries, where it is no longer used on account of having adopted metric measurements, or in countries where it is still used, is different from the English foot except in Russia, where this measure is still in use and identical to the English.

The abbreviation of meter is m.; of centimeter cm.; of millimeters mm.

Where in the English feet are given, without inches, the equivalents in meters with two decimals (centimeters), are sufficient in translations.

## Meters to Feet

Meter		10	20	30	40	50	60	70	80	90
	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet
0		32.81	65.62	98.43	131.23	164.04	196.85	229.66	262.47	295.27
1	3.2808	36.09	68.90	101.71	134.51	167.32	200.13	232.94	265.75	298.55
2	6.5617	39.37	72.18	104.99	137.79	170.60	203.41	236.22	269.03	301.83
3	9.8425	42.65	75.46	108.27	141.07	173.88	206.69	239.50	272.31	305.11
4	13.1233	45.93	78.74	111.55	144.35	177.16	209.97	242.78	275.59	308.39
5	16.4042	49.21	82.02	114.83	147.63	180.44	213.25	246.06	278.87	311.67
6	19.6850	52.50	85.31	118.12	150.92	183.73	216.54	249.35	282.16	314.96
7	22.9658	55.78	88.59	121.40	154.20	187.01	219.82	252.63	285.44	318.24
8	26.2467	59.06	91.87	124.68	157.48	190.29	223.10	255.91	288.72	321.52
9	29.5275	62.34	95.15	127.96	160.76	193.57	226.38	259.19	292.00	324.80

If there is anything that you want in the line of Iron and Steel or other Metals and Machinery, do not think we cannot supply it because it is not described in this hand book. Send us your inquiry in any language that may best suit you. Our sales department will be glad to correspond with you in the tongue you prefer.



# INDEX

<b>A</b> —Angles.....	15	<b>I</b> —Ingots.....	5
<b>B</b> —Billets.....	5	<b>M</b> —Music Wire.....	32
Blooms.....	5	Metric Equivalents.....	76
Beams.....	14	<b>N</b> —Nail Wire.....	32
Black Sheets.....	24	Nuts and Bolts.....	43
Barb Wire.....	36	<b>P</b> —Pipe and Tubing.....	62
Baling Wire.....	34	<b>R</b> —Rivets.....	22
<b>C</b> —Channels.....	16	<b>S</b> —Semi-Finished Products.....	5
Carriage Bolts.....	45	Slabs.....	44
Concrete Bars.....	46	Structural Steel.....	13
Cold Rolled Steel.....	55	Steel Plates.....	20
Cold Drawn Steel.....	55	Spring Wire.....	32
Carbon Tool Steel.....	69	Strip Steel.....	54
<b>E</b> —Extras—Steel Bars.....	49	Shafting.....	56
Extras—Refined Iron Bars..	11	Special Market Wire.....	31
Extras—Structural Shapes..	18	Spikes.....	60
Extras—Plates.....	20	Steel Bars.....	72
Extras—Rivets.....	22	Sheet Bars.....	05
Extras—Sheets.....	28	<b>T</b> —Tin Bars.....	05
Extras—Wire.....	77	Tee Bars.....	17
Extras—Wire Nails.....	40	Terne Plate.....	25
Extras—Hoops and Bands..	48	Tin Plate.....	25
Extras—Strip Steel.....	54	Table of Rails per Mile.....	58
Extras—Cold Rolled Steel... 55		Tool Steel.....	66
Extras—Rails.....	59	Table for Computing Weights	
Extras—Spikes.....	60	of Steel Bars.....	72
Extras—Pipe and Tubing... 63		<b>U</b> —Universal Mill Plates.....	17
Extras—High Speed Steel... 67		<b>W</b> —Wire and Wire Products....	31
Extras—Carbon Tool Steel.. 69		Wire Nails.....	37
<b>F</b> —Fence Wire.....	32	Wire Rope.....	41
<b>G</b> —Galvanized Sheets.....	29	<b>Z</b> —Zee Bars.....	16
<b>H</b> —High Speed Steel.....	67		
Hoops and Bands.....	48		









APR 79

N. MANCHESTER,  
INDIANA 46962



LIBRARY OF CONGRESS



0 003 131 476 8

